Pinson Valley PA
Ref 5

RCRA 3012 SITE INSPECTION REPORT

FOR

ALABAMA BY-PRODUCTS, INC.
ALD000823179
SITE INSPECTION
JANUARY 10, 1985

Presented to:

Alabama Department of Environmental Management
Montgomery, Alabama

Presented by:

Environmental Protection Systems, Inc.
Jackson, Mississippi
Pensacola, Florida
Mobile, Alabama

Project No. 1.84.174.01
March, 1985

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Alabama By-Products has operated at this site since 1920. The site has been used to produce coke and coal chemicals since its construction. During the first thirty years of operation, coal tar sludge was stored in a pit or pile near the back of the property. This material was removed in about 1950 and since that time has been charged into the furnace with the coal. Therefore, they are not currently generating a hazardous waste.

The facility is also regulated under an NPDES permit. Phenolic discharges to surface waters are monitored through this permit. The treatment system used at this facility includes two surface impoundments and two concrete activated sludge-clarifier units. The impoundments are lined with bentonite and clay. A drainage ditch is present on this site to control runoff from the coal/coke storage areas. This ditch empties into a holding pond site. The RCRA 3012 site investigation has indicated high concentrations of both acid extractable and base neutral priority pollutants in the surface runoff ditch and the equalization pond. Oily tar-like material was observed in both of these areas. Organic contamination can be summarized as follows:

Organic Screen	Equalization Pond	Runoff Ditch
Base neutrals, total, ppm	925	2,831
Acid extractables, total, ppm	1,541	6,283

The organic contaminants found in this sampling were mainly polyaromatic hydrocarbons (PAH's) and phenolics. Concentrations of 4,6 dinitro-o-cresol were found in excess of 1,000 ppm. This compound is reportedly highly

toxic and is listed both in the TSCA inventory and under RCRA listing P047. Based on this information, further work is recommended at this site. The extent of contamination, potential worker exposure, and potential contamination of the groundwater are undetermined at this time.

2.0 BACKGROUND

2.1 Location

Alabama By-Products (ABC) is located at Alabama St. & Huntsville Road in Tarrant City, Alabama; zip code 35020, Jefferson County, latitude $33^{o}35'15"$, longitude $086^{o}47'00'$. State and local location maps are presented as Exhibit 2.1.

2.2 Site Layout

The plant site is west of Tarrant City and lies along the Louisville & Nashville Railroad. The site is bordered by the L & N Railroad and other industrial complexes on the east and south, by Five Mile Creek on the north and the sewage disposal plant and a quarry on the west. The plant site basically consists of the coking operation and numerous rail spurs extending out to the coal and coke storage yards on the western side. The wastewater treatment system is located at the north of the property and consists of an equalization pond, 2 concrete activated sludge-clarifier units and a post aeration pond. The site also has a holding pond that is used to contain plant runoff. Surface runoff is generally to the north.

2.3 Ownership History

Alabama By-Products has owned and operated this plant since 1920 when it was built.

2.4 Site Use History

The site has been used to produce coke and coal chemicals since its construction. During the early years of operation, estimated prior to

1950, the coal tar sludge produced was stored in a pile/pit near the back of the property. This area was cleaned up in 1950 and since that time the sludge produced is charged into the furnace with the coal. Coal is currently being stored in this area.

2.5 Permit and Regulatory History

A Part A application was filed in 1980 to cover the plant's wastewater treatment ponds. It was determined that a permit was not needed and interim status was withdrawn. A CERCLA notification was also filed in 1980 for the possible landfilling of tar sludge. If this was done or where is not known by Alabama By-Products.

The plant also has an NPDES permit for wastewater discharge to Five Mile Creek and a Jefferson County Health Department Air Permit.

2.6 Remedial Actions to Date

There are no known remedial actions to date other than the removal of the pile of tar sludge that was at the back of the property. This material was charged into the furnace with the coal. This is the current practice also. No sampling has been done to determine that all materials were removed.

2.7 Summary Trip Report

Environmental Protection Systems, Inc. (EPS), conducted a RCRA 3012 Site Inspection of Alabama By-Products in Tarrant City, Alabama at 8:00 a.m. January 10, 1985. The EPS chief inspector was Mr. Steven M. Hornung. He was assisted by Mr. Thomas McAlpin. The sampling team met Mr. Moyer B. Edwards and James D. Duren of Alabama By-Products.

The sampling team arrived during a heavy rainstorm and an initial interview was conducted in the plant office. At the end of the interview it was decided to conduct a visual inspection of the site from vehicles while waiting for the weather conditions to ease. The rain did let up during the visual inspection and it was decided to initiate sampling. Rain was encountered periodically during the inspection. The sampling team was escorted by the ABC officials during the inspection and samples were split.

Mr. Duren indicated an area near the bank of Five Mile Creek, northeast of the treatment facility that was used for the storage of the tar sludges. He estimated this practice stopped around 1950. The area is now in the area of coke storage and no sign of residual sludge was present. Coke was stored in this area at the time of the inspection.

It was decided to sample the ditch that collects runoff from the area.

An upstream ditch was sampled to determine a background level. The sample was taken in the ditch as it runs parallel to the rail spurs and before it enters a conduit. The sample was a black tar-like material.

The conduit extends approximately 150 feet and then opens to a ditch again. This lower reach of ditch collects runoff from the former tar storage area. A sediment sample was obtained from the ditch before it goes under a roadway and flows to the holding pond. The sample was basically soil with some coke/coal fines.

A short break was taken to get out of the rain and to warm up from the cold weather conditions. The sampling team and the ABC officials returned to the plant office.

At the continuation samples were taken from Five Mile Creek in an effort to determine the effect ABC's discharge may be having on the stream. ABC has constructed a dam across the creek. The water flows over the top. The plant discharge pipe is located on the downstream side of the dam. Access to the creek above the plant was not possible during the inspection. A drainage ditch along the plant flows into the creek above the dam and above ABC's pump house, which is used to obtain process water. Access to the creek above this ditch was not possible either. A sample was therefore taken directly above the dam where there was an accumulation of sediment. At the time of the inspection there was a slight oil sheen on the water.

The sampling team next attempted to obtain a downstream sediment sample. The creek bottom below the dam was slab and broken rock. Sediment was not present. The creek was followed to below the bridge which crosses it from ABC's property. A sediment sample was obtained below the bridge along the south bank. The sample was mainly sand with some silt.

A final sample was taken from the equalization basin. The sludge was a very thick, black oily looking material. The basin has a clay and

bentonite liner as does the post-aeration pond. Both ponds are along the creek but appeared to be out of the floodplain due to the depth of the creek banks along the plant site.

Pictures were taken during the inspection. The consent was given with the understanding that ABC could receive a copy of the prints.

3.0 ENVIRONMENTAL SETTING

3.1 Topography

The Alabama By-Products coke plant is located in the Birmingham-Big Canoe Valley District of the Alabama Valley and Ridge Province. Relief is characterized by a series of broad, flat valleys and low, narrow ridges. Total relief can be up to 400 feet from valley floor to ridgetop, but is normally less. The site itself lies in the Opossum Valley area, south of Sand Mountain. The immediate area around the plant is relatively flat in the valley, however, to the east of Tarrant City the terrain becomes rather hilly.

3.2 Surface Waters

Runoff from the site and the surrounding area drains to Five Mile Creek which is located north of the plant site. The creek is used heavily for discharging of waters by neighboring industries. Alabama By-Products has also constructed a dam to pool the water for a process water inlet. On the day of the inspection a light sheen of oil was observed above the dam.

3.3 Geology and Soils

The Alabama By-Products plant lies in the Opossum Valley southeast of the Opossum Valley Fault. The site is in the outcrop area of the Conasauga Formation, which consists of thin to medium-bedded limestone with thin partings of shale. Thick-bedded high-calcium limestone occurs locally. The beds are folded and fractured. The thickness of the Conasauga formation is estimated to be 1,100 to 1,900 feet.

The overlying soil is a clayey or silty-clay soil of the Colbert-Conasauga-Firestone soil series. The soil ranges in thickness from 5 to 20 feet and has a low permeability. Surface drainage in areas of the Conasauga Formation tends to be poor and during periods of heavy rains, the soil usually becomes saturated and swampy conditions are common.

3.4 Groundwater

The Conasauga Formation and the Ketone Dolomite, which also outcrops in the nearby area, are both considered good aquifers. The water table in the areas underlain by the Conasauga formation is typically 6 to 30 feet below ground surface. Some flowing springs exist and have been utilized for industrial and residential use.

3.5 Climate and Meteorology

General Description: Humid, subtropical, mild winters, hot summers, precipitation during all months. Snowfall seldom; no average monthly temperatures below freezing.

Precipitation: Mean annual precipitation 53.2 inches; annual free water surface evaporation 34.5 inches; mean annual net precipitation 18.7 inches; one year 24-hour rainfall is 3.5 inches. Precipitation is highest from December to June; evaporation is highest from July to November.

3.6 Land Use

The land bordering the facility for the most part is industrial. There is a small residential area to the northeast consisting of approximately 60 homes. A sewage disposal plant is west of the property and a quarry is

located southwest and another north of the plant. There is also some undeveloped land north of the site. East and south of the site within a quarter mile is the town of Tarrant City and its adjoining communities.

3.7 Population Distribution

Population near Alabama By-Products is concentrated to the east and south of the plant. These areas consist of business/residential sections of Tarrant City and its adjoining communities. Adjacent to the property on the northeast edge of the property is a small residential section consisting of approximately 60 homes. Population is limited within a mile of the plant to the north and west.

3.8 Water Supply

The drinking water in the Tarrant City area is purchased from the City of Birmingham. The primary water supply is from Lake Purdy on the Cahaba River with supplemental water from the industrial water supply which is the Inland Reservoir on the Blackburn Fork, a tributary of Locust Fork. Process water for Alabama By-Products is taken from Five Mile Creek.

3.9 Critical Environment/Endangered and Threatened Species

Species Common Name	Range	Status
Indiana Bat	Central Alabama	Endangered (Fed)
Gray Bat	Eastern 2/3 Alabama	Endangered (Fed)
Bald Eagle	Statewide	Endangered (Fed)
Golden Eagle	Statewide	Endangered (AL)
Red-cockaded Woodpecker	South of Tennessee River	Endangered (Fed)
Peregrine Falcon	Statewide	Endangered (Fed)
Osprey	Statewide	Endangered (AL)
Flattened Musk Turtle	Streams of Black Warrior River System	Threatened (AL)

(Reference: Environmental Data Inventory, State of Alabama, U.S. Army Corps of Engineers, Mobile District, 1981)

4.0 WASTE TYPES AND QUANTITIES

4.1 Waste Quantities

It is unknown at this time how much decanter tar sludge is produced at this facility. This material, although a listed hazardous waste, is placed in their furnaces and used for its heat value in the coking process. This facility also operates under an NPDES permit. The plant's treatment system includes several ponds on the facility property. Sampling in this RCRA site investigation included sampling of the equalization basin, which is part of their NPDES system. The sludge in this basin was found to contain organic contamination. The dimensions of the basin are estimated to be 30 x 40 feet and the estimated depth of the sludge is approximately 0.5 feet. A runoff ditch on the property was determined to contain organic contamination as well. The full extent of environmental contamination is unknown at this time.

4.2 Waste Disposal Methods and Locations

For a period, from 1920 to approximately 1950, decanter tar sludge was piled on the property. In 1950 this material was removed and recycled into furnaces on the plant site. At the present time, it is customary practice for the facility to use the sludge in this manner. Wastewater is handled through an NPDES permit. The NPDES treatment system includes earthen basins, which aerate the waste material, as well as settle solids.

4.3. Waste Types

This facility produces K087-decanter tank tar sludge, which is typical from coking operations. This material is a listed hazardous waste for phenol

and naphthalene. In addition, analysis of environmental samples indicated the presence of varying phenols, including nitro- and chlorophenols, anthracene, pyrene, naphthalene, fluorene, and fluoranthene compounds. Specific quantities and compounds are shown in Exhibit 5.1.

5.0 LABORATORY DATA

5.1 Summary

The sampling stations involved in this investigation are described as follows:

Sample Number	Matrix	Description
ABC-SD1-BG	Sediment	Background sample of surface runoff ditch near the treatment plant.
ABC-SD2-DI	Sediment	Ditch sediment taken upstream of the holding pond and road, which may have received runoff from the former disposal area.
ABC-SD3-BG	Sediment	Sediment sample from Five Mile Creek above the dam and NPDES outfalls.
ABC-SD4-CR	Sediment	Sediment sample taken downstream of dam and NPDES outfall (approximately 500-600 feet)
ABC-SD5-PD	Sediment	Composite of sludge from the equalization basin.

Analytical results and quality control information are presented in Exhibit 5.1. To summarize this information, trace organics were seen in all stations. The smallest concentrations of organic constituents were seen in Five Mile Creek. A small amount (3.29 ppm) of nitrophenol was seen in the sediments upstream, and phenanthrene and dinitrocresol were seen downstream in the Five Mile Creek. PAH's and phenolics were seen both in the runoff ditch and the equalization pond sediments. The following compounds were seen in access of 1,000 ppm to approximately 4,000 ppm: 2-chlorophenol, 4,6-dinitro-o-cresol, and 2,4-dichlorophenol.

5.2 Quality Assurance Review

All sample collection, sample preservation and chain-of-custody procedures used during this investigation were in accordance with the standard operating procedures as specified in the Quality Control/Quality Assurance Plan for the Analytical and Environmental Division of Environmental Protection Systems, Inc., revised August 31, 1984. All laboratory analyses and quality assurance procedures used during this investigation were in accordance with standard procedures and protocols as specified in the above referenced document. Spiking levels and recovery data are in the analytical report presented in Exhibit 5.1. No suspect data or deviation from the established protocol was noted.

6.0 TOXICOLOGICAL/CHEMICAL CHARACTERISTICS

Marshall Sittig, in his publication Hazardous and Toxic Effects of Industrial Chemicals, reports that OSHA and the American Conference of Governmental Industrial Hygienists, have adopted a threshold limit value for coal tar products. These are specifically for coal tar pitch volatiles described as "benzene-soluble" fractions. The limit is reported as 0.2 mg/m^3. This was established to minimize exposure to substances believed to be carcinogens; specifically anthracene, benzopyrene, phenanthrene, chrysene and pyrene. Based on review of toxicologic and epidemiologic evidence, it has been concluded that some materials contained in coal tar pitch can cause lung and skin cancer. Certain PAH's have been demonstrated as carcinogenic in animal tests. Most of the compounds found in these environmental samples were listed on the TSCA inventory. In addition, several chemicals are listed under RCRA. Of particular importance is dinitro-o-cresol (2-methyl, 4,6-dinitrophenol). This compound is reportedly highly toxic. It should also be noted that 2-nitrophenol is reported to react violently with potassium hydroxide and is known to cause kidney and liver damage. Many of the compounds found in this analysis are known carcinogens and have mutogenic potential. Other compounds are still being tested for their carcinogenic effect. A review of information in the SAX handbook indicates that these compounds have a rating of 3. The nitrophenols SAX ratings range from 3 to 2. More specific toxicology is presented in Exhibit 6.0.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Analysis of environmental samples at the Alabama By-Products facility indicated that appreciable organic contamination is present on this site. This contamination can be classed as mainly nitro- and chlorophenols and PAH's. The highest contamination can be seen in the surface runoff ditch and equalization pond areas. Of specific concern are concentrations of 4,6 dinitro-o-cresol (reported as 2-methyl, 4,6-dinitrophenol). This organic is reportedly acutely toxic and its disposal is regulated as such under RCRA. Oily materials in the runoff ditch contained between 1,200 and 2,500 ppm of this compound. Both areas also contained between 2,000 and 4,000 ppm 2 chlorophenol. In addition, the equalization pond contained approximately 2,700 ppm of 2,4-dichlorophenol. By far, the highest contamination seen at this site were in oily materials found in the sediments at the equalization pond. This pond is not regulated under RCRA, as it is part of their NPDES treatment system. Although this pond is bentonite lined, it is unknown if the organic contamination extends beyond the lines. The highest organic contamination found in the surface runoff ditch was upstream. Oily tar-like material was evident in this area. It is unknown at this time how far organic contamination extends in the ditch area. The ditch ultimately leads to a holding pond. Sediments were not sampled in this pond; therefore, it is not known whether or not organics are present here as well.

Review of geologic information indicates that no site-specific information was available at this site. General information indicates the site lies on the Conasauga Formation, which is primarily limestone and thin partings of shale. This formation is known to have folded and fractured beds. In addition, there is a fault in close proximity to the site and highly

complex geologic structures are present throughout this area. Based on this information and the quantity and characteristics of organics found on this site, further action is recommended. The extent of contamination, its potential effect on the groundwater and employee exposure have yet to be determined.

EXHIBITS

ALABAMA

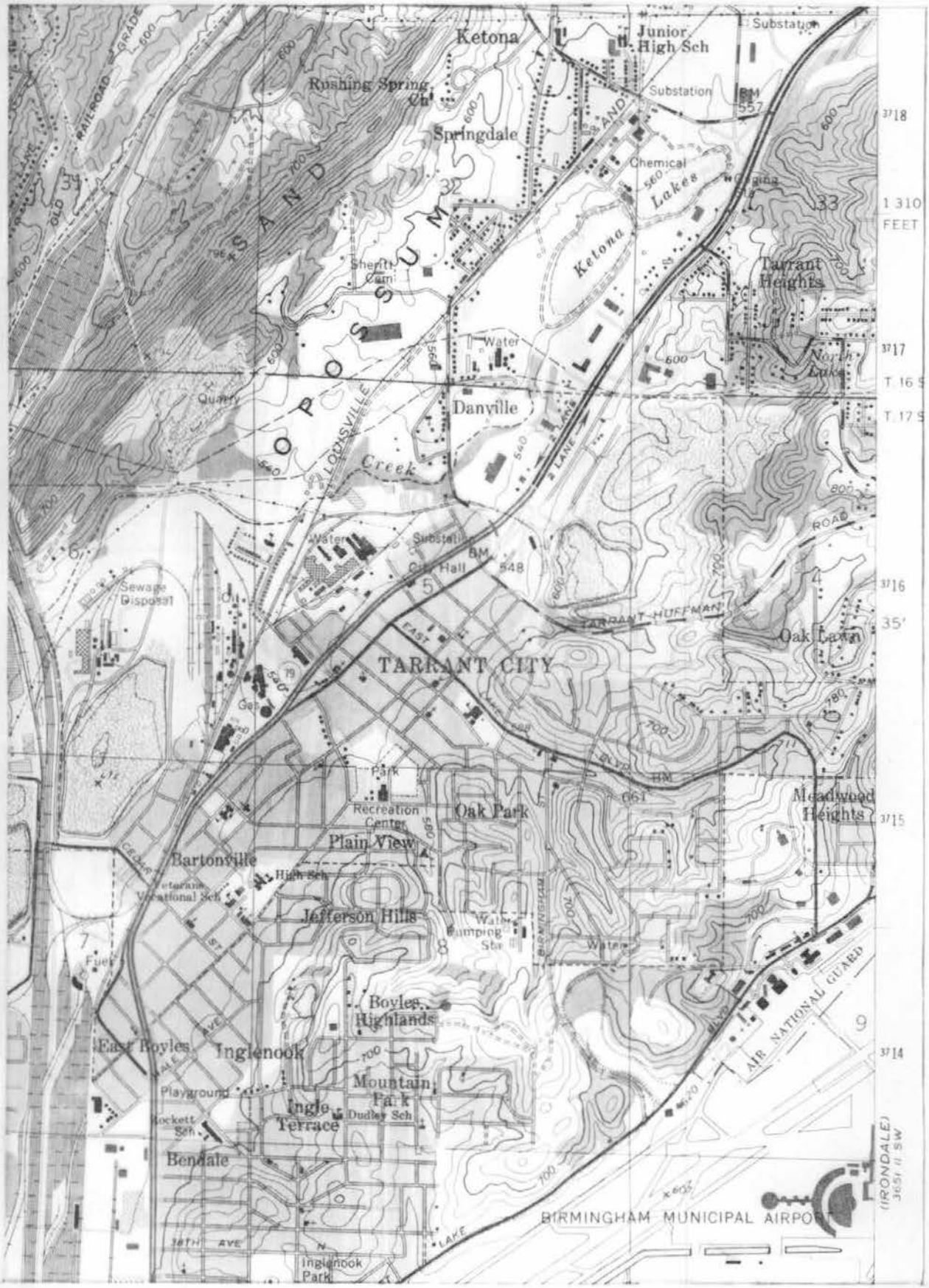
Population: 3,890,061
(1980 Census
Area: 51,609 Sq. Miles
Capital: Montgomery

Cities and Towns

For Tennessee see pages 20-21

For Mississippi see page 27

For Georgia see page 15



U.S.G.S. 7½ MIN. SERIES
NORTH BIRMINGHAM, ALABAMA

N

EXHIBIT 2.1

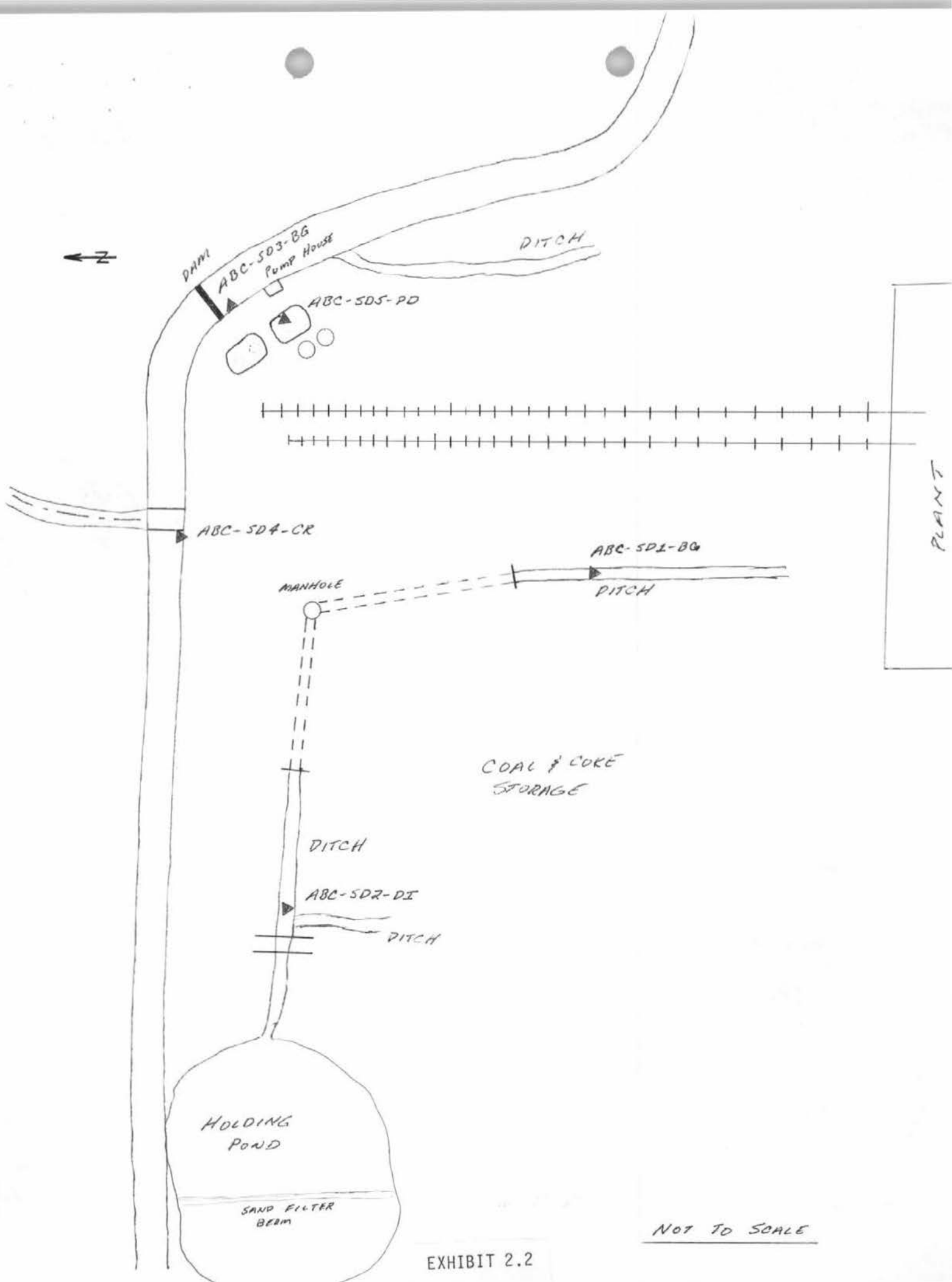

N
DAM
ABC-SD3-BG
Pump House
DITCH
ABC-SD5-PD
PLANT
ABC-SD4-CR
ABC-SD1-BG
MANHOLE
DITCH
COAL & COKE
STORAGE
DITCH
ABC-SD2-DI
DITCH
HOLDING
POND
SAND FILTER
BERM
NOT TO SCALE

EXHIBIT 2.2

GEOLOGICAL SURVEY OF ALABAMA
THOMAS J. JOINER
STATE GEOLOGIST

MAP 14
BIRMINGHAM NORTH QUADRANGLE
ALABAMA–JEFFERSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

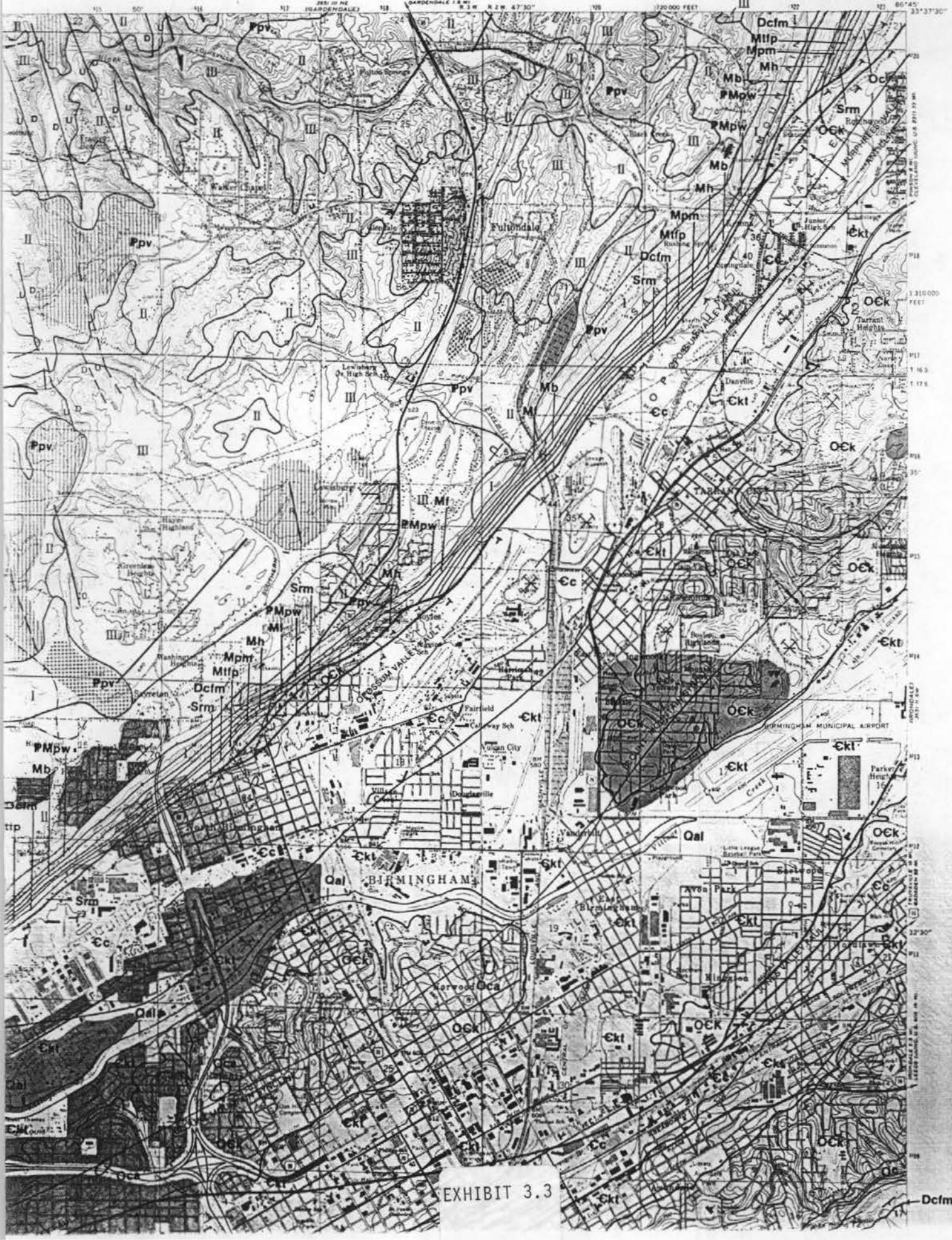


EXHIBIT 3.3

EXPLANATION

- Qal — Alluvium and low terrace deposits
- IPpv — Pottsville Formation
- IPMpw — Parkwood Formation
- Mf — Floyd Shale
- Mb — Bangor Limestone
- Mh — Hartselle Sandstone
- Mpm — Pride Mountain Formation
- Mtfp — Tuscumbia Limestone, Fort Payne Chert, and Maury Formation
- Dcfm — Chattanooga Shale and Frog Mountain Sandstone
- Srm — Red Mountain Formation
- Oc — Chickamauga Limestone
- Oca — Attalla Chert Conglomerate Member: Chickamauga Limestone
- O€k — Knox Group undifferentiated
- €kt — Ketona Dolomite
- €c — Conasauga Formation
- Contact, dotted where concealed
- Anticline, axial trace, dashed where inferred
- Syncline, axial trace, dotted where concealed
- Fault, amount and direction of displacement unknown, dashed where inferred, dotted where concealed
- U / D — Normal fault: U, upthrown side; D, downthrown side, dashed where inferred, dotted where concealed
- Thrust fault, T on upper plate, dashed where inferred
- 30 — Strike and dip of beds
- 34 — Strike and dip of overturned beds

Soils associated with Pottsville Formation:

- I — Sandy loam
- II — Silty loam
- III — Silty loam with shale fragments

- Area disturbed by strip mining
- Mine waste dump
- Sinkhole
- Area most susceptible to subsidence by sinkhole collapse
- Surface subsidence, possible underground mine collapse
- 1 — Joint-measurement site (see below)

Quarries

- Active
- Inactive

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382
106 Upton Dr
Jackson, Ms. 39209
601 922-8242

7215 Pine Forest Rd
Pensacola, Fl. 32506
904 944-0301

ANALYTICAL REPORT

Date: March 13, 1985

Site: Alabama By-Products Tarrant Coke Plant
Tarrant, Alabama

Matrix: Soil

Client: Alabama Department of Environmental Management

Date Received: January 11, 1985

EPS Lab No.	EPS Field Identification
85010155	ABC-SD1-BG
85010156	ABC-SD2-DI
85010157	ABC-SD3-BG
85010158	ABC-SD4-CR
85010159	ABC-SD5-PD

Attached sheets list results of our analysis of above samples for: Cyanide, Base/Neutral Extractables, Acid Extractables

Analytical Reference No.: 85.1.366

Larry P. Stott

ociate Director of Analytical Services

EXHIBIT 5.1

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382
106 Upton Dr
Jackson, Ms. 39209
601 922-8242

7215 Pine Forest Rd
Pensacola, Fl. 32506
904 944-0301

ANALYTICAL REPORT

Date: March 13, 1985

Site: Alabama By-Products Tarrant Coke Plant
Tarrant, Alabama

Matrix: Soil

Client: Alabama Department of Environmental Management

Date Received: January 11, 1985

Spiking and Recovery Data

EPS Lab No. 85010160

Parameter	Spiking Level (ppm)	Percent (%) Recovery
Cyanide	0.60	73.0
Hexachlorobenzene	20.0	89.0
Pentachlorophenol	20.0	93.0

Associate Director of Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 1/4

CLIENT: Alabama Dept. of Environmental Mgmt.
LOCATION: Montgomery, Alabama
DATE: 03/14/85
INVOICE NO.: To be invoiced/bp

COLLECTED BY: EPS (174)
DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010155 - ABC - SD1 - BG
85010156 - ABC - SD2 - DI
85010157 - ABC - SD3 - BG
85010158 - ABC - SD4 - CR

ANALYSES	IDENTIFICATION NUMBER 155	156	157	158
Cyanide, Total, mg/kg	4.03	3.43	4.14	4.00
Base/Neutrals Extractables, Screen 110, ppm, except:	<0.01	<0.01	<0.01	<0.01
Naphthalene, ppm	74.2	8.37	<0.01	<0.01
Acenaphthylene, ppm	93.0	7.58	<0.01	<0.01
Fluorene, ppm	217	14.7	<0.01	<0.01
Anthracene, ppm	165	12.5	<0.01	<0.01
Phenanthrene, ppm	59.2	<0.01	<0.01	4.45
Fluoranthene, ppm	128	<0.01	<0.01	<0.01
Benzo(b)fluoranthene, ppm	22.5	<0.01	<0.01	<0.01
Chrysene, ppm	99.8	<0.01	<0.01	<0.01

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. Metal analysis reported on a dry weight basis. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Larry P. Stutts
MANAGER, CHEMICAL LABORATORY

Herbert A. Johnston
DIRECTOR, ANALYTICAL SERVICES

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 2/4

CLIENT: Alabama Dept. of Environmental Mgmt.
LOCATION: Montgomery, Alabama
DATE: 03/14/85
INVOICE NO.: To be invoiced/bp

COLLECTED BY: EPS (174)
DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010155 - ABC - SD1 - BG
85010156 - ABC - SD2 - DI
85010157 - ABC - SD3 - BG
85010158 - ABC - SD4 - CR

ANALYSES	IDENTIFICATION NUMBER 155	156	157	158
Base/Neutrals Extractables, Screen 110, ppm, except:	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene, ppm	12.4	8.57	<0.01	<0.01
Pyrene, ppm	<0.01	<0.01	<0.01	<0.01
Acid Extractables, Screen 111, ppm, except:	<0.01	<0.01	<0.01	<0.01
2-Chlorophenol, ppm	3,935	<0.01	<0.01	<0.01
2,4-Dichlorophenol, ppm	346	<0.01	<0.01	<0.01
2,4,6-Trichlorophenol, ppm	444	<0.01	<0.01	<0.01
4-Chloro 3-Methylphenol, ppm	74	<0.01	<0.01	<0.01
2-Methyl 4,6-Dinitrophenol, ppm	1,204	27.3	<0.01	22.9
4-Nitrophenol, ppm	280	<0.01	3.29	<0.01

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Larry P. Stutt
MANAGER, CHEMICAL LABORATORY

Herbert A. Johnston
DIRECTOR, ANALYTICAL SERVICES

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 3/4

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LOCATION: Montgomery, Alabama
DATE: 03/14/85
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DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010159 - ABC - SD5 - PD

ANALYSES	IDENTIFICATION NUMBER 159			
Cyanide, Total, mg/kg	9.29			
Base/Neutrals Extractables, Screen 110, ppm, except:	<0.01			
Naphthlene, ppm	357			
Fluorene, ppm	204			
Acenaphthylene, ppm	120			
Anthracene, ppm	124			
Pyrene, ppm	120			
Acid Extractables, Screen 111, ppm, except:	<0.01			
2-Chlorophenol, ppm	2,815			
2-Nitrophenol, ppm	712			

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. Metal analysis reported on a dry weight basis. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

MANAGER, CHEMICAL LABORATORY

DIRECTOR, ANALYTICAL SERVICES

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LABORATORY REPORT

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DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010155 - ABC - SD5 - PD

ANALYSES	IDENTIFICATION NUMBER 159			
Acid Extractables, Screen 111, ppm, except:	<0.01			
2,4-Dimethylphenol, ppm	251			
2,4-Dichlorophenol, ppm	2,658			
2,4,6-Trichlorophenol, ppm	948			
4-Chloro 3-Methylphenol, ppm	809			
2-Methyl 4,6-Dinitrophenol, ppm	2,452			
4-Nitrophenol, ppm	896			

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Larry P. Shuff
MANAGER, CHEMICAL LABORATORY

Herbert B. Johnston
DIRECTOR, ANALYTICAL SERVICES

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382
106 Upton Dr.
Jackson, Ms. 39209
601 922-8242

7215 Pine Forest Rd.
Pensacola, Fl. 32506
904 944-0301

EPA PRIORITY POLLUTANT ORGANICS

Base-Neutral Extractable Organics - Screen 110

Acenaphthene
Acenaphthylene
Anthracene
Benzidine
Benzo(a)Anthracene
Benzo(a)Pyrene
3,4-Benzofluoranthene
Benzo(ghi)Perylene
Benzo(k)Fluoranthene
Bis(2-Chloroethoxy)Methane
Bis(2-Chloroethyl)Ether
Bis(2-Chloroisopropl)Ether
Bis(2-Ethylhexyl)Phthalate
4-Bromophenyl Phenyl Ether
Butylbenzyl Phthalate
2-Chloronaphthalene
4-Chlorophenyl Phenyl Ether
Chrysene
Dibenzo(a,h)Anthracene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3'-Dichlorobenzidine
Diethyl Phthalate
Dimethyl Phthalate
Di-N-Butyl Phthalate
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-N-Octyl Phthalate
1,2-Diphenylhydrazine (as Azobenzene)
Fluoroanthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)Pyrene
Isophorone
Napthalene
Nitrobenzene
N-Nitrosodimethylamine
N-Nitrosidi-N-Propylamine
N-Nitrosodiphenylamine
Phenanthrene
Pyrene
1,2,4-Trichlorobenzene

Acid Extractable Organics - Screen 111

2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
4,6-Dinitro-O-Cresol
2,4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
P-Chloro-M-Cresol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol

Volatile Organics - Screen 112

Acrolein
Acrylonitrile
Benzene
Bromoform
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
2-Chloroethylvinyl Ether
Chloroform
Dichlorobromomethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloropropane
1,2-Dichloropropylene
Ethylbenzene
Methyl Bromide
Methyl Chloride
Methylene Chloride
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
1,2-Trans-Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Vinyl Chloride

Polychlorinated Biphenyls - Screen 113

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260

ation of the septum, and a chest x-ray. On periodic examinations an evalu-on should be made of skin and respiratory complaints, especially in orkers who demonstrate allergic reactions. Chest x-rays should be taken arly for workers over age 40, and every five years for younger workers. ood, liver, and kidney function should be evaluated periodically.

ecial Tests: Urinary chromate values have been studied in relation to ex-sure, but their value is questionable.

rsonal Protective Methods: Full body protective clothing should be worn areas of chromic acid exposure, and impervious gloves, aprons, and foot-ear should be worn in areas where spills or splashes may contact the skin. here chromic acid may contact the eyes by spills or splashes, impervious otective goggles or face shield should be worn. All clothing should be anged at the end of the shift and showering encouraged prior to change to reet clothes. Clean clothes should be reissued at the start of the shift. Respi-tors should be used in areas where dust, fumes, or mist exposure exceeds ederal standards or where brief concentrations exceed the TWA, and for nergencies. Dust, fumes and mist filter-type respirators or supplied air respi-tors should be supplied all workers exposed, depending on concentration exposure.

eferences

) National Institute for Occupational Safety and Health. *Occupational Diseases: A Guide to Their Recognition, Revised edition.* NIOSH Doc. No. 77-181, Wash., D.C. (June 1977).

) National Institute for Occupational Safety and Health. *Criteria for a Recommended Standard: Occupational Exposure to Chromic Acid.* NIOSH Publ. No. 73-11021 (1973).

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arborik, M. 1970. The problem of harmful exposures to chromium compounds. *Ind. Med. Surg.* 39:45.

avidson, I.W.F., and Secrest, W.L. 1972. Determination of chromium in biological materials by atomic absorption spectrometry using a graphite furnace atomizer. *Anal. Chem.* 44:1808.

lenning, H.F. 1972. Chromium plating. *Ann. Occup. Hyg.* 15:93.

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EXHIBIT 6.0

COAL TAR PRODUCTS

escription: The term "coal tar products," as used by NIOSH (1), includes

coal tar and two of the fractionation products of coal tar, creosote and coal tar pitch, derived from the carbonization of bituminous coal. Coal tar, coal tar pitch, and creosote derived from bituminous coal often contain identifiable components which by themselves are carcinogenic, such as benzo[a]pyrene, benzanthracene, chrysene, and phenanthrene. Other chemicals from coal tar products such as anthracene, carbazole, fluoranthene, and pyrene may also cause cancer, but these causal relationships have not been adequately documented.

Synonyms: None.

Potential Occupational Exposures: The coke-oven plant is the principal source of coal tar. The hot gases and vapors produced during the conversion of coal to coke are collected by means of a scrubber, which condenses the effluent into ammonia, water, crude tar, and other by-products. Crude tar is separated from the remainder of the condensate for refining and may undergo further processing.

Employees may be exposed to pitch and creosote in metal and foundry operations, when installing electrical equipment, and in construction, railway, utility, and briquette manufacturing. A list of primary employment in which the various types of pitch and creosote are encountered is as follows:

Product	User Industry	% of Tar Processed	No. of Jobs Affected
Electrode binder pitch	Aluminum	43.2	28,000
	Steel	3.0	50,000
	Graphite	9.2	10,000
Core pitch	Foundry	2.2	2,000
Refractory pitch	Steel	2.4	50,000
Fiber pitch	Electrical	3.5	-
Misc. pitch	Various	3.4	-
Roofing pitch	Construction	8.8	-
Other tars and fuel residue	Fuel	24.3	-
Creosote	Railway, utility, construction	-	5,000
			Total 145,000

Permissible Exposure Limits: In 1967, the American Conference of Governmental Industrial Hygienists (ACGIH) adopted a threshold limit value (TLV) of 0.2 mg/cu m for coal tar pitch volatiles (CTPV), described as a "benzene-soluble" fraction, and listed certain carcinogenic components of CTPV. The TLV

as established to minimize exposure to the listed substances believed to be rcinogens, viz, anthracene, benzo[a]pyrene, phenanthrene, acridine, chrysene, and pyrene. This TLV was promulgated as a federal standard under the ccupational Safety and Health Act of 1970 (29 CFR 1910.1000). No foreign andards were found for exposure to coal tar pitch or creosote.

1973, NIOSH published the "Criteria for a Recommended Standard—Occupational Exposure to Coke Oven Emissions," recommending work practices minimize the harmful effects of exposure to coke-oven emissions and inhalation of coal tar pitch volatiles. In 1974, OSHA established a Standards Advisory ommittee on Coke Oven Emissions to study the problem of the exposure of oke-oven workers to CTPV and to prepare recommendations for an effective andard in the assigned area. In 1975, the Committee recommended a limit f 0.2 μg/cu m for benzo[a]pyrene (Federal Register, 41:46742-46787, October 2, 1976).

ccording to a recent NIOSH publication (1), occupational exposure to coal r products shall be controlled so that employees are not exposed to coal tar, oal tar pitch, creosote or mixtures of these substances at a concentration reater than 0.1 milligram/cu m of the cyclohexane-extractable fraction of the ample, determined as a time-weighted average (TWA) concentration for up o a 10-hour work shift in a 40-hour workweek.

outes of Entry: Inhalation and skin contact.

larmful Effects

ased on a review of the toxicologic and epidemiologic evidence presented, it as been concluded (1) that some materials contained in coal tar pitch, and herefore in coal tar, can cause lung and skin cancer, and perhaps cancer at ther sites. Based on a review of experimental toxicologic evidence, it is also oncluded that creosote can cause skin and lung cancer. While the evidence n creosote is not so strong as that on pitch (in part because of difficulties in hemical characterization of such mixtures), the conclusion on the carcinogenic otential of creosote is supported by information on the presence of polyuclear aromatic hydrocarbons and imputations and evidence of the carcinoenicity of such hydrocarbons.

Medical Surveillance: Medical surveillance shall be made available, as specified below, to all employees occupationally exposed to coal tar products.

(a) Preplacement medical examinations shall include:
   1. Comprehensive initial medical and work histories, with special emphasis directed toward identifying preexisting disorders of the skin, respiratory tract, liver, and kidneys.
   2. A physical examination giving particular attention to the oral cavity, skin, and respiratory system. This shall include posteroanterior and lateral chest x-rays (35 x 42 cm). Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV 1.0), and a sputum cytology examination shall be offered as part of the medical examination of exposed employees. Other tests, such as liver function and urinalysis should be performed as considered appropriate by the responsible physician. In addition, the mucous membranes of the oral cavity should be examined.
   3. A judgment of the employee's ability to use positive pressure respirators.

(b) Periodic examinations shall be made available at least annually. These examinations shall include:
   1. Interim medical and work histories.
   2. A physical examination as outlined in (a) 2 above.

(c) Initial medical examinations shall be made available to all workers as soon as practicable after the promulgation of a standard based on these recommendations.

(d) Pertinent medical records shall be maintained for at least 30 years after termination of employment. They shall be made available to medical representatives of the government, the employer or the employee.

Special Tests: None commonly used.

Personal Protective Methods: Employers shall use engineering controls when needed to keep the concentration of airborne coal tar products at or below the specified limit. Employers shall provide protective clothing and equipment impervious to coal tar products to employees whenever liquid coal tar products may contact the skin or eyes. Emergency equipment shall be located at well-marked and clearly identified stations and shall be adequate to permit all personnel to escape from the area or to cope safely with the emergency on reentry.

Protective equipment shall include a) eye and face protection, b) protective clothing and c) respiratory protection as spelled out in detail by NIOSH (1).

Reference

(1) National Institute for Occupational Safety and Health. *Criteria for a Recommended Standard: Occupational exposure to coal tar products.* NIOSH Doc. No. 78-107, Wash., D.C. (Sept. 1977).

COBALT AND COMPOUNDS

Description: Co, cobalt, is a silver-grey, hard, brittle, magnetic metal. It is rel-

POLYNUCLEAR AROMATIC HYDROCARBONS

escription: The polynuclear aromatic hydrocarbons constitute a class of ma-erials of which benzo[a]pyrene is one of the most common and also the most azardous.

enzo[a]pyrene, $C_{20}H_{12}$, is a yellowish crystalline solid, melting at 179°C. It onsists of five benzene rings joined together.

ynonyms: PNAs, PAHs, PPAHs (Particulate polycyclic aromatic hydrocar-ons) and POMs (Polynuclear organic materials). (Benzo[a]pyrene is also nown as BaP.)

otential Occupational Exposures: PNAs can be formed in any hydrocarbon ombustion process and may be released from oil spills. The less efficient the ombustion process, the higher the PNA emission factor is likely to be. The ajor sources are stationary sources, such as heat and power generation, efuse burning, industrial activity, such as coke ovens, and coal refuse heaps. Vhile PNAs can be formed naturally (lightning-ignited forest fires), impact of ese sources appears to be minimal. It should be noted, however, that while ansportation sources account for only about 1% of emitted PNAs on a na-onal inventory basis, transportation-generated PNAs may approach 50% of e urban resident exposures.

ecause of the large number of sources, most people are exposed to very low evels of PNAs. BaP has been detected in a variety of foods throughout the orld. A possible source is mineral oils and petroleum waxes used in food ontainers and as release agents for food containers. FDA studies have indi-ated no health hazard from these sources.

he air pollution aspects of the carcinogenic polynuclear aromatic hydrocar-ons (PAH) and of benzo[a]pyrene (BaP) in particular have been reviewed in ome detail by Olsen and Haynes (1). The total emissions of benzo[a]pyrene aP) and some emission factors for BaP are as presented by Goldberg (2).

ermissible Exposure Limits: A TLV of 0.2 mg/m³ as benzene solubles has een assigned ty ACGIH. These materials are designated by ACGIH as human arcinogens.

oute of Entry: Inhalation of particulates, vapors.

armful Effects

ertain PNAs which have been demonstrated as carcinogenic in test animals at elatively high exposure levels are being found in urban air at very low levels. arious environmental fate tests suggest that PNAs are photo-oxidized, and eact with oxidants and oxides of sulfur. Because PNAs are adsorbed on par-culate matter, chemical half-lives may vary greatly, from a matter of a few

hours to several days. One researcher reports that photo-oxidized PNA fractions of air extracts also appear to be carcinogenic. Environmental behavior/fate data have not been developed for the class as a whole.

It has been observed that PNAs are highly soluble in adipose tissue and lipids. Most of the PNAs taken in by mammals are oxidized and the metabolites excreted. Effects of that portion remaining in the body at low levels have not been documented.

Benzo[a]pyrene (BaP), one of the most commonly found and hazardous of the PNAs has been the subject of a variety of toxicological tests, which have been summarized by the International Agency for Research on Cancer. 50-100 ppm administered in the diet for 122-197 days produced stomach tumors in 70% of the mice studied. 250 ppm produced tumors in the forestomach of 100% the mice after 30 days. A single oral administration of 100 mg to nine rats produced mammary tumors in eight of them. Skin cancers have been induced in a variety of animals at very low levels, and using a variety of solvents (length of application was not specified).

Lung cancer developed in 2 of 21 rats exposed to 10 mg/m³ BaP and 3.5 ppm SO_2 for 1 hour/day, five days a week, for more than one year. Five of 21 rats receiving 10 ppm SO_2 for 6 hours/day, in addition to the foregoing dosage, developed similar carcinomas. No carcinomas were noted in rats receiving only SO_2. No animals were exposed only to BaP. Transplacental migration of BaP has been demonstrated in mice. Most other PNAs have not been subjected to such testing.

Medical Surveillance: Preplacement and regular physical examinations are indicated for workers having contact with polynuclear aromatics in the workplace.

Special Tests: None in use.

Personal Protective Methods: Good particulate emission controls are the indicated engineering control scheme where polynuclear aromatics are encountered in the workplace.

References

(1) Olsen, D.A. and Haynes, J.L. *Air Pollution Aspects of Organic Carcinogens.* Report PB-188 090, Springfield, Virginia, Nat. Tech. Information Service (Sept. 1969).
(2) Goldberg, A.J. *A Suvey of Emissions and Controls for Hazardous and Other Pollutants.* Report PB-223 568, Springfield, Virginia, Nat. Tech. Information Service (Feb. 1973).

Bibliography

Begeman, C.R., and Colucci, J.M. *Polynuclear Aromatic Hydrocarbon Emissions from*

Harmful Effects

Local—The naphthas are irritating to the skin, conjunctiva, and the mucous membranes of the upper respiratory tract. Skin "chapping" and photosensitivity may develop after repeated contact with the liquid. If confined against skin by clothing, the naphthas may cause skin burn.

Systemic—Petroleum naphtha has a lower order of toxicity than that derived from coal tar, where the major hazard is brought about by the aromatic hydrocarbon content. Sufficient quantities of both naphthas cause central nervous system depression. Symptoms include inebriation, followed by headache and nausea. In severe cases, dizziness, convulsions, and unconsciousness occasionally result. Symptoms of anorexia and nervousness have been reported to persist for several months following an acute overexposure, but this appears to be rare. One fraction, hexane, has been reported to have been associated with peripheral neuropathy. (See Hexane.) If benzene is present, coal tar naphthas may produce blood changes such as leukopenia, aplastic anemia, or leukemia. The kidneys and spleen have also been affected in animal experiments. (See Benzene.)

Medical Surveillance: Preplacement and periodic medical examinations should include the central nervous system. If benzene exposure is present, workers should have a periodic complete blood count (CBC) including hematocrit, hemoglobin, white blood cell count and differential count, mean corpuscular volume and platelet count, reticulocyte count, serum bilirubin determination, and urinary phenol in the preplacement examination and at 3-month intervals. There are no specific diagnostic tests for naphtha exposure but urinary phenols may indicate exposure to aromatic hydrocarbons. It should be noted that benzene content of vapor may be higher than predicted by content in the liquid.

Special Tests: None in common use.

Personal Protective Methods: Workers should use barrier creams, protective clothing, gloves and masks where exposure to the vapor is likely.

Bibliography

Pagnotto, L.D., Elkins, H.B., Brugsch, H.G., and Walkley, J.E. 1961. Industrial benzene exposure from petroleum naphtha. 1. Rubber coating industry. *Am. Ind. Hyg. Assoc. J.* 22:417.

NAPHTHALENE

Description: $C_{10}H_8$, naphthalene, is a white crystalline solid with a characteristic "moth ball" odor.

Synonyms: Naphthalin, moth flake, tar camphor, white tar.

Potential Occupational Exposures: Naphthalene is used as a chemical intermediate or feedstock for synthesis of phthalic, anthranilic, hydroxyl (naphthols), amino (naphthylamines), and sulfonic compounds which are used in the manufacture of various dyes. Naphthalene is also used in the manufacture of hydronaphthalenes, synthetic resins, lampblack, smokeless powder, and celluloid. Naphthalene has been used as a moth repellent.

A partial list of occupations in which exposure may occur includes:

- Beta naphthol makers
- Celluloid makers
- Coal tar workers
- Dye chemical makers
- Fungicide makers
- Hydronaphthalene makers
- Lampblack makers
- Moth repellent workers
- Phthalic anhydride makers
- Smokeless powder makers
- Tannery workers
- Textile chemical makers

Permissible Exposure Limits: The Federal standard is 10 ppm (50 mg/m^3).

Route of Entry: Inhalation of vapor or dust.

Harmful Effects

Local—Naphthalene is a primary irritant and causes erythema and dermatitis upon repeated contact. It is also an allergen and may produce dermatitis in hypersensitive individuals. Direct eye contact with the dust has produced irritation and cataracts.

Systemic—Inhaling high concentrations of naphthalene vapor or ingesting may cause intravascular hemolysis and its consequences. Initial symptoms include eye irritation, headache, confusion, excitement, malaise, profuse sweating, nausea, vomiting, abdominal pain, and irritation of the bladder.

There may be progressive jaundice, hematuria, hemoglobinuria, renal tubular blockage, and acute renal shutdown. Hematologic features include red cell fragmentation, icterus, severe anemia with nucleated red cells, leukocytosis, and dramatic decreases in hemoglobin, hematocrit, and red cell count. Individuals with a deficiency of glucose-6-phosphate dehydrogenase in erythrocytes are more susceptible to hemolysis by naphthalene.

Medical Surveillance: Consider eyes, skin, blood, liver, and renal function in placement and follow-up examinations. Low erythrocyte glucose 6-phosphate dehydrogenase increases risk.

Special Tests: None in common use.

Personal Protective Methods: As used in industry, they are rarely necessary.

Yellow needles from alc. mp: 130°. Insol HCl, sol in alc.

SYNS:

ALPHA-AMINOANTHRACENE	1-ANTHRACYLAMINE
1-AMINOANTHRACENE	1-ANTHRAMINE

TOXICITY DATA: 3	CODEN:
mma-sat 20 ug/plate	PNASA6 72,5135,75
dnr-esc 100 mg/L	JNCIAM 62,873,79
mrc-smc 5 pph	JNCIAM 62,901,79
orl-rat TDLo:7200 mg/kg/27D-I:ETA	CNREA8 28,924,68

THR: MUT data. An exper ETA.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

ANTHRACENE

CAS RN: 120127 NIOSH #: CA 9350000
mf: $C_{14}H_{10}$; mw: 178.24

Colorless crystals, violet fluorescence. mp: 217°, lel = 0.6%, flash p: 250°F (CC), d: 1.24 @ 27°/4°, autoign. temp.: 1004°F, vap. press: 1 mm @ 145.0°, (sublimes), vap. d: 6.15, bp: 339.9°. Insol in water. Sol in alc @ 1.9/100 @ 20°; in ether = 12.2/100 @ 20°.

SYNS:

ANTHRACEN (GERMAN)	PARANAPHTHALENE
ANTHRACIN	TETRA OLIVE N2G
GREEN OIL	

TOXICITY DATA: 3	CODEN:
mma-sat 100 ug/plate	ABCHA6 43,1433,79
skn-mus 118 ug MLD	CALEDQ 4,333,78
dns-hmn:fbr 10 mg/L	CNREA8 38,2091,78
hma-mus/sat 125 mg/kg	JNCIAM 62,911,79
dnd-mam:lym 100 umol	BIPMAA 9,689,70
orl-rat TDLo:20 gm/kg/79W-I:ETA	ZEKBAI 60,697,55
scu-rat TDLo:3300 mg/kg/33W-I:NEO	NATWAY 42,159,55
scu-rat TD:660 mg/kg/33W-I:ETA	ZEKBAI 60,697,55

"NIOSH Manual of Analytical Methods" VOL 1 206. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: MUT data. A skn irr. An allergen. An exper ETA, NEO.
Fire Hazard: Low, when exposed to heat or flame; reacts with oxidizing materials.
Spontaneous Heating: No.
Explosion Hazard: MOD, when exposed to flame, $Ca(OCl)_2$, chromic acid.
To Fight Fire: Water, foam, CO_2, water spray or mist, dry chemical.
Incomp: Fluorine.

1,9-ANTHRACENEDIOL

CAS RN: 30086954 NIOSH #: CA 9698000
mf: $C_{14}H_{10}O_2$; mw: 210.24

SYN: 1,9-DIHYDROXYANTHRACENE

TOXICITY DATA:	CODEN:
mmo-smc 1000 ppm/16H	ADVEA4 51,45,71

THR: MUT data.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

1,2,10-ANTHRACENETRIOL

CAS RN: 577333 NIOSH #: CB 1220000
mf: $C_{14}H_{10}O_3$; mw: 226.24

Yellow, brown powder; mp: 208°.

SYN: ANTHRAROBIN

TOXICITY DATA:	CODEN:
mmo-sat 100 ug/plate	BCSTB5 5,1489,77
mma-sat 100 ug/plate	BCSTB5 5,1489,77

THR: MUT data. MLD allergen. Local contact may cause contact dermatitis.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

1,8,9-ANTHRACENETRIOL

CAS RN: 480228 NIOSH #: CB 1225000
mf: $C_{14}H_{10}O_3$; mw: 226.24

Yellow powder. mp: 178°-180°. Insol in water, sol in fat, hot alc, benzene and dilute alkalies.

SYNS:

ANTHRALIN	1,8-DIHYDROXY-9-ANTHRANOL
1,8,9-ANTHRATRIOL	1,8-DIHYDROXY-9-ANTHRONE
DIHYDROXY-ANTHRANOL	DIOXYANTHRANOL
1,8-DIHYDROXYANTHRANOL	1,8,9-TRIHYDROXYANTHRACENE

TOXICITY DATA: 3	CODEN:
mmo-sat 100 ug/plate	BCSTB5 5,1489,77
mma-sat 100 ug/plate	BCSTB5 5,1489,77
dnr-esc 250 ug/plate	JNCIAM 62,873,79
mmo-smc 165 nmol/L	ADVEA4 51,45,71
skn-mus TDLo:509 mg/kg/53W-I:NEO	JMCMAR 21,26,78
skn-mus TD:73 mg/kg/11W-I:ETA	GANNA2 59,187,68

Carcinogenic Determination: Animal Suspected IARC** 13,75,77.
Toxicology Review: ZKKOBW 78,99,72.
THR: MUT data. An exper NEO, ETA, susp CARC. Locally it can cause folliculitis of skin. Absorption may result in kidney injury and intestinal disturbances.
Fire Hazard: Slight, when heated.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

1,8,9-ANTHRACENETRIOL TRIACETATE

CAS RN: 16203977 NIOSH #: CB 1410000
mf: $C_{20}H_{16}O_6$; mw: 352.36

SYNS:

EXOLAN	1,8,9-TRIACETOXYANTHRACENE

TOXICITY DATA: 2	CODEN:
eye-rbt 330 ug SEV	BJOPAL 53,819,69

THR: An eye irr.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

SYNS:
3-ACETOXYQUINUCLIDINE GLAUCOSTAT
3-QUINUCLIDINOL ACETATE

TOXICITY DATA: 3
scu-rat LD50:225 mg/kg — ARZNAD 18,320,68
ivn-rat LD50:45 mg/kg — ARZNAD 18,320,68
orl-mus LD50:165 mg/kg — ARZNAD 18,320,68
scu-mus LD50:102 mg/kg — ARZNAD 18,320,68
ivn-mus LD50:36 mg/kg — RPTOAN 35(2),55,72

THR: HIGH scu, ivn, orl.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

ACEFEN

CAS RN: 3685845 NIOSH #: AG 0440000
mf: $C_{12}H_{16}ClNO_3 \cdot ClH$; mw: 294.20

SYNS:
CENTROPHENOXINE HYDROCHLORIDE
DIMETHYLAMINOETHYL ESTER OF P-CHLOROPHENOXYACETIC ACID HYDROCHLORIDE
LUCIDRYL HYDROCHLORIDE
MECLOFENOXATE HYDROCHLORIDE

TOXICITY DATA: 3-2
orl-mus LD50:1750 mg/kg — CRSBAW 153,1914,59
ipr-mus LD50:845 mg/kg — CRSBAW 153,1914,59
ivn-mus LD50:350 mg/kg — CRSBAW 153,1914,59
ivn-rbt LDLo:150 mg/kg — CRSBAW 153,1914,59

THR: HIGH ivn. MOD orl, ipr.
Disaster Hazard: When heated to decomp it emits very toxic fumes of Cl^-, NO_x and HCl.

ACENAPHTHALENE

NIOSH #: AB 1255500
mf: $C_{10}H_6(CH_2)_2$; mw: 154.2

White, elongated crystals. mp: 95°, bp: 277.5°; d: 1.024 @ 99°/4°; vap. press.: 10 mm @ 131.2°; vap. d: 5.32. Insol in water, sl sol in hot alc, ether and chloroform.

SYN: 1,8-ETHYLENE NAPHTHALENE.

TOXICITY DATA:
mma-sat 490 umol/L/2H — CODEN: CNREA8 39,4152,79

THR: MUT data. A skn and mu mem irr. May cause acute vomiting if swallowed in large quantities.
Fire Hazard: Slight.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

ACENAPHTHANTHRACENE

CAS RN: 5779793 NIOSH #: CU 1575000
mf: $C_{20}H_{14}$; mw: 254.34

SYNS:
BENZ(K)ACEPHENANTHRENE
4,5-DIHYDROBENZ(K)ACEPHENANTHRYLENE
3:4-DIMETHYLENE-1:2-BENZANTHRACENE

TOXICITY DATA: 3
skn-mus TDLo:960 mg/kg/40W-I:ETA — CODEN: PRLBA4 129,439,40

THR: An exp ETA.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

5-ACENAPHTHENAMINE

CAS RN: 4657936 NIOSH #: AB 0900000
mf: $C_{12}H_{11}N$; mw: 169.24

Sol. in ethanol; colorless needles, mp: 108°.

SYNS:
5-AMINOACENAPHTHENE
1,2-DIHYDRO-5-ACENAPHTHYLENAMINE

TOXICITY DATA: 3
ivn-mus LD50:56 mg/kg — CODEN: CSLNX* NX#01911

Carcinogenic Determination: Indefinite IARC** 16, 243,78
THR: HIGH ivn. An exper ± CARC.
Disaster Hazard: When heated to decomp it emits toxic fumes of NO_x.

ACENAPHTHYLENE

CAS RN: 208968 NIOSH #: AB 1254000
mf: $C_{12}H_8$; mw: 152.20

SYN: CYCLOPENTA(DE)NAPHTHALENE

TOXICITY DATA:
mma-sat 1 mmol/L/2H — CODEN: CNREA8 39,4152,79

Reported in EPA TSCA Inventory, 1980.
THR: MUT data.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

ACEPROMAZINE MALEATE

CAS RN: 3598376 NIOSH #: OB 2450000
mf: $C_{19}H_{22}N_2OS \cdot C_4H_4O_4$; mw: 442.57

SYNS:
ACETYLPROMAZINE MALEATE (1:1)
MALEATE ACIDE DE L'ACETYL-3-DIMETHYLAMINO-3-PROPYL-10-PHENOTHIAZINE (FRENCH)

TOXICITY DATA: 3
orl-mus LDLo:270 mg/kg — CODEN: AIPTAK 113,53,57
scu-mus LD50:175 mg/kg — AIPTAK 113,53,57
ivn-mus LD50:65 mg/kg — APTOA6 19,87,62

THR: HIGH tox in mice via oral, scu and ivn routes.
Disaster Hazard: When heated to decomp it emits highly tox fumes of NO_x and SO_x.

ACETAL

CAS RN: 105577 NIOSH #: AB 2800000
mf: $C_6H_{14}O_2$; mw: 118.20

Colorless, volatile liquid, agreeable odor, nutty after-taste. bp: 102.7°, flash p: −5°F (CC), lel = 1.65%, uel = 10.4%, d: 0.831; autoign. temp.: 446°F, vap. press: 10 mm @ 8.0°, vap. d: 4.08, mp: −100°. Sl sol in water, misc in alc and ether.

A mixture of 2 isomers, brown crystals, nearly insol in water, sol in most organic solvents. mp(α): 106°, mp(β): 212°, d: 1.745 @ 20°/20°.

SYNS:
ENT 23,979
ALPHA,BETA-1,2,3,4,7,7-HEXACHLOROBICYCLO(2.2.1)-2-HEPTENE-5,6-BISOXYMETHYLENE SULFITE
1,2,3,4,7,7-HEXACHLOROBICYCLO(2.2.1)HEPTEN-5,6-BIOXYMETHYLENESULFITE
HEXACHLOROHEXAHYDROMETHANO
2,4,3-BENZODIOXATHIEPIN-3-OXIDE
6,7,8,9,10,10-HEXACHLORO-1,5,5a,6,9,9a-HEXAHYDRO-6,9-METHANO-2,4 ,3-BENZODIOXATHIEPIN-3-OXIDE
1,4,5,6,7,7-HEXACHLORO-5-NORBORNENE-2,3-DIMETHANOL CYCLIC SULFITE
NCI-C00566

TOXICITY DATA: 3	CODEN:
orl-rat TDLo:45 mg/kg/(6-14D preg):TER	RPTOAN 42,150,78
orl-mus TDLo:330 mg/kg/78W-1:NEO	NTIS** PB223-159
scu-mus TDLo:2 mg/kg:ETA	NTIS** PB223-159
orl-rat LD50:18 mg/kg	ARSIM* 20,9,66
skn-rat LD50:74 mg/kg	WRPCA2 9,119,70
ipr-rat LD50:22 mg/kg	BECTA6 15,708,76
unk-rat LD50:40 mg/kg	30ZDA9 -,267,71
orl-mus LD50:75 mg/kg	GTPZAB 8(4),30,64
ipr-mus LD50:7 mg/kg	BECTA6 15,708,76
orl-cat LD50:2 mg/kg	85DPAN -,-,71/76
skn-rbt LD50:167 mg/kg	BECTA6 14,513,75
orl-ham LD50:118 mg/kg	JETOAS 7,159,74
orl-dck LD50:34 mg/kg	TXAPA9 22,556,72
orl-bwd LD50:35 mg/kg	TXAPA9 21,315,72

Aquatic Toxicity Rating: TLm96:under 1 ppm WQCHM* 3,-,74. *TLV:* Air: 0.1 mg/m3 (skin) DTLVS* 4,165,80. *Toxicology Review:* DTTIAF 80(20),485,73; RREVAH 56,107,75; 27ZTAP 3,142,69. NCI Carcinogenesis Bioassay Completed; Results Negative (NCITR* NCI-CG-TR-62,77).
THR: An exper TER, NEO, ETA. VERY, VERY HIGH orl. VERY HIGH via dermal routes. A CNS stimulant producing convulsions. A highly toxic organochlorine pesticide which does not accumulate significantly in human tissue. Absorption is normally slow but is increased by alcohols, oil, emulsifiers.
Disaster Hazard: Dangerous; see chlorides and S compounds.

BENZO(j)FLUORANTHENE

CAS RN: 205823 NIOSH #: DF 6300000
mf: $C_{20}H_{12}$; mw: 252.32

SYNS:
10,11-BENZFLUORANTHENE
7,8-BENZOFLUORANTHENE
DIBENZO(A,J,K)FLUORENE

TOXICITY DATA: 3	CODEN:
skn-mus TDLo:312 mg/kg/26W-I:ETA	CANCAR 12,1194,59

Carcinogenic Determination: Animal positive IARC** 3,92,73.
Toxicology Review: 85DHAX Pc,4,72. "NIOSH Manual of Analytical Methods" VOL 1 183.
THR: An exper ETA. An exper CARC.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

BENZO(k)FLUORANTHENE

CAS RN: 207089 NIOSH #: DF 6350000
mf: $C_{20}H_{12}$; mw: 252.32

SYN: 11,12-BENZO(K)FLUORANTHENE

TOXICITY DATA: 3	CODEN:
skn-mus TDLo:2820 mg/kg/47W-I:ETA	CANCAR 12,1194,59
scu-mus TDLo:72 mg/kg/9W-I:ETA	AICCA6 19,490,63

"NIOSH Manual of Analytical Methods" VOL 1 183,184.
THR: An exper ETA.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

BENZO(b)FLUORENE

CAS RN: 30777196 NIOSH #: DF 6383000
mf: $C_{17}H_{12}$; mw: 216.29

TOXICITY DATA:	CODEN:
mma-sat 25 umol/L/2H	CNREA8 39,4152,79

THR: MUT data.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

BENZOFURAN

CAS RN: 271896 NIOSH #: DF 6423800
mf: C_8H_6O; mw: 118.14

SYNS:
BENZO(B)FURAN
2,3-BENZOFURAN
BENZOFURFURAN
NCI-C56166
1-OXINDENE

Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reported in EPA TSCA Inventory, 1980.
THR: No data.
Disaster Hazard: When heated to decomp it emits acrid and irr smoke and fumes.

2-BENZOFURANCARBOXYLIC ACID

CAS RN: 496413 NIOSH #: DF 6490000
mf: $C_9H_6O_3$; mw: 162.15

SYN: COUMARILIC ACID

TOXICITY DATA: 3	CODEN:
ivn-mus LD50:320 mg/kg	CSLNX* NX#02495

Reported in EPA TSCA Inventory, 1980.
THR: HIGH ivn.
Disaster Hazard: When heated to decomp it emits acrid smoke and irr fumes.

2-BENZO-FURANCETONITRILE

CAS RN: 6149699 NIOSH #: DF 6550000

SYN: (2-CHLOROVINYL)MERCURIC CHLORIDE

TOXICITY DATA: 3 CODEN:
ivn-mus LD50:56200 ug/kg CSLNX* NX#05831

Occupational Exposure to Inorganic Mercury recm std: Air: TWA 0.05 mg(Hg)/m3 NTIS**.
THR: HIGH ivn. See also mercury compounds.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and Hg.

5-(p-CHLOROCINNAMOYL)-4,7-DIMETHOXY-6-(2-DIMETHYLAMINOETHOXY) BENZOFURAN OXALATE

NIOSH #: DF 6500000
mf: $C_{23}H_{25}ClNO_5 \cdot C_2H_2O_4$; mw: 520.98

TOXICITY DATA: 3-2 CODEN:
orl-mus LD50:950 mg/kg CHTPBA 8,479,73
ivn-mus LD50:27 mg/kg CHTPBA 8,479,73

THR: HIGH ivn; MOD orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

6-CHLOROCOUMARIN

CAS RN: 2051594 NIOSH #: GN 4950000
mf: $C_9H_5ClO_2$; mw: 180.59

TOXICITY DATA: 3 CODEN:
orl-mus LD50:355 mg/kg YKKZAJ 83,1124,63
scu-mus LD50:163 mg/kg YKKZAJ 83,1124,63

Toxicology Review: PMDCAY 10,85,74.
THR: HIGH orl, scu.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

4-CHLORO-o-CRESOL

CAS RN: 1570645 NIOSH #: GO 7120000
mf: C_7H_7ClO; mw: 142.59

TOXICITY DATA: 3 CODEN:
ivn-mus LD50:56 mg/kg CSLNX* NX#03270

Reported in EPA TSCA Inventory, 1980.
THR: HIGH ivn.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

6-CHLORO-m-CRESOL

CAS RN: 59507 NIOSH #: GO 7100000
mf: C_7H_7ClO; mw: 142.59

Odorless crystals (when pure). Somewhat sol in water, very sol in organic solvents. mp: 66°, bp: 235°.

SYNS:
P-CHLOR-M-CRESOL
P-CHLOROCRESOL
4-CHLORO-M-CRESOL
2-CHLORO-HYDROXYTOLUENE
6-CHLORO-3-HYDROXYTOLUENE
4-CHLORO-3-METHYLPHENOL
3-METHYL-4-CHLOROPHENOL

TOXICITY DATA: 3 CODEN:
orl-rat LDLo:500 mg/kg JPETAB 90,260,47
scu-rat LD50:400 mg/kg QJPPAL 12,212,39
ipr-mus LDLo:30 mg/kg QJPPAL 12,212,39
scu-mus LDLo:200 mg/kg QJPPAL 12,212,39

Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: HIGH oral and scu. An allergen. See cresol.
Disaster Hazard: Dangerous; see phosgene.

O-(gamma-CHLOROCROTYL)HYDROXYLAMINE

NIOSH #: NC 3410000
mf: $C_4H_8ClO \cdot ClH$; mw: 144.03

SYN: O-(3-CHLORO-2-BUTENYL)HYDROXYLAMINE HYDROCHLORIDE

TOXICITY DATA: CODEN:
mmo-esc 10 umol/disc SOGEBZ 11,1296,75

THR: MUT data.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and HCl.

CHLOROCYANOACETYLENE

mf: C_3ClN; mw: 85.49

Incomp: air.

2-CHLORO-1-CYANOETHANOL

mf: C_3H_4ClNO; mw: 105.53

Slight overheating may cause explosive decomp.

3-CHLORO-6-CYANO-2-NORBORNANONE-O-(METHYLCARBAMOYL)OXIME

CAS RN: 15271417 NIOSH #: RB 7700000
mf: $C_{10}H_{12}ClN_3O_2$; mw: 241.70

SYNS:
ENDO-3-CHLORO-EXO-6-CYANO-2-NORBORNANONE-O-(METHYLCARBAMOYL)OXIME
2-EXO-CHLORO-6-ENDO-CYANO-2-NORBORNANONE-O-(METHYLCARBAMOYL)OXIME
3-CHLORO-6-CYANONORBORNANONE-2-OXIME-O,N-METHYLCARBAMATE
5-CHLORO-6-((((METHYLAMINO)CARBONYL)OXY)IMINO)BICYCLO(2.2.1)HEPTANE-2-CARBONITRILE
EXO-5-CHLORO-6-OXO-ENDO-2-NORBORNANECARBONITRILE O-(METHYLCARBAMOYL)OXIME
ENT 25,962

TOXICITY DATA: 3 CODEN:
orl-rat LD50:19 mg/kg 12VXA5 9,1230,76
skn-rat LD50:303 mg/kg WRPCA2 9,119,70
unk-rat LD50:26 mg/kg 30ZDA9 -,198,71
skn-rbt LDLo:303 mg/kg BESAAT 12,161,66

THR: HIGH orl, skn, unk.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

CHLOROCYCLINE

CAS RN: 82939 NIOSH #: TL 1925000
mf: $C_{18}H_{21}ClN_2$; mw: 300.86

CHLORPHACINON (ITALIAN)
2(2-(4-CLORO-FENIL-2FENIL)-ACETIL)INDAN-1,3-DIONE (ITALIAN)
2-(4-CHLOR-PHENYL-2-PHENYL)ACETYL)INDAN-1,3-DION (GERMAN)
2-(2-PHENYL-2-(4-CHLOROPHENYL)ACETYL)-1,3-INDANDIONE

TOXICITY DATA: 3 CODEN:
orl-rat LD50:2100 ug/kg GUCHAZ 6,112,73
orl-mus LD50:1060 ug/kg TXAPA9 25,42,73
orl-rbt LD50:50 mg/kg GUCHAZ 6,112,73
ihx-rbt LD50:200 mg/kg GUCHAZ 6,112,73
orl-dck LD50:100 mg/kg GUCHAZ 6,112,73
orl-mam LD50:7500 ug/kg GUCHAZ 6,112,73
orl-brd LD50:430 mg/kg GUCHAZ 6,112,73

THR: HIGH orl, skn.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

CHLOROPHENAMIDINE

CAS RN: 6164983 NIOSH #: LQ 4375000
mf: $C_{10}H_{13}ClN_2$; mf: 196.70

SYNS:
CHLORDIMEFORM
N'-(4-CHLORO-O-TOLYL)-N,N-DIMETHYLFORMAMIDINE
N'-(4-CHLORO-2-METHYLPHENYL)-N,N-DIMETHYLMETHANIMIDAMIDE
N'-(4-CHLOR-O-TOLYL)-N,N-DIMETHYLFORMAMIDIN (GERMAN)
N,N-DIMETHYL-N'-(2-METHYL-4-CHLOROPHENYL)-FORMAMIDINE
METHANIMIDAMIDE, N'-(4-CHLORO-2-METHYLPHENYL)-N,N-DIMETHYL-N'-(2-METHYL-4-CHLORPHENYL)-FORMAMIDIN-HYDROCHLORID (GERMAN)

TOXICITY DATA: 3-2 CODEN:
ihx-rbt 500 mg open MLD CIGET* 6/2/75
eye-rbt 100 mg MLD CIGET* 6/2/75
orl-rat LD50:170 mg/kg SPEADM 74-1,-,74
ihx-rat LD50:4 gm/kg 85DPAN -,-,71/76
ipr-rat LD50:238 mg/kg JTEHD6 3,565,77
orl-mus LD50:160 mg/kg SPEADM 74-1,-,74
ihx-mus LD50:225 mg/kg SPEADM 78-1,21,78
orl-rbt LD50:625 mg/kg 28ZEAL 5,43,76
ihx-rbt LD50:640 mg/kg 85DPAN -,-,71/76
ipr-mus LD50:86 mg/kg NTIS* PB80-205867

THR: HIGH orl, ipr, skn. MOD skn, orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and Cl^-.
For further information see Chlordimeform, Vol. 2, No. 6 of *DPIM Report.*

CHLOROPHENAMIDINE HYDROCHLORIDE

CAS RN: 19750959 NIOSH #: LQ 4550000
mf: $C_{10}H_{13}ClN_2 \cdot ClH$; mw: 233.16

SYNS:
CHLORDIMEFORM HYDROCHLORIDE
N'-(4-CHLORO-O-TOLYL)-N,N-DIMETHYLFORMAMIDINE HYDROCHLORIDE
CHLOROPHENAMIDINE HYDROCHLORIDE
N,N-DIMETHYL-N'-(2-METHYL-4-CHLOROPHENYL)-FORMAMIDINE HYDROCHLORIDE

TOXICITY DATA: 3-2 CODEN:
orl-rat LD50:225 mg/kg SPEADM 74-1,-,74
ihx-rat LD50:4000 mg/kg SPEADM 78-1,22,78
orl-mus LD50:290 mg/kg BESAAT 15,103,69
orl-rbt LD50:625 mg/kg BESAAT 15,103,69

THR: HIGH orl, skn. MOD skn, orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of NO_x and Cl^-.

2-(P-CHLOROPHENETHYL)-6,7-DIMETHOXY-1-METHYL-1,2,3,4-TETRAHYDROISOQUINOLINE FUMARATE

CAS RN: 1872817 NIOSH #: NX 4952000
mf: $C_{20}H_{24}ClNO_2 \cdot C_4H_4O_4$; mw: 461.98

TOXICITY DATA: 3-2 CODEN:
orl-mus LD50:800 mg/kg ARZNAD 17,1145,67
ivn-mus LD50:55 mg/kg ARZNAD 17,1145,67

THR: HIGH ivn; MOD orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

1-(p-CHLOROPHENETHYL)HYDRAZINE HYDROGEN SULFATE

CAS RN: 2598256 NIOSH #: MV 2025000
mf: $C_8H_{11}ClN_2 \cdot H_2O_4S$; mw: 268.74

TOXICITY DATA: 3 CODEN:
orl-mus LD50:175 mg/kg JMPCAS 5,221,62
scu-mus LD50:250 mg/kg JOENAK 30,205,64

THR: HIGH orl, scu.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^-, NO_x and SO_x.

2-CHLOROPHENOL

CAS RN: 95578 NIOSH #: SK 2625000
mf: C_6H_5ClO; mw: 128.56

Light amber liquid. bp: 174.5°, fp: 7°, d: 1.256 @ 25°/25°, flash p: 147°F, vap. press: 1 mm @ 12.1°.

SYNS: O-CHLOROPHENOL

TOXICITY DATA: 3 CODEN:
skn-mus TDLo:4800 mg/kg/12W-I:ETA CNREA8 19,413,59
orl-rat LD50:670 mg/kg FEPRA7 2,76,43
ipr-rat LD50:230 mg/kg BJPCAL 13,20,58
scu-rat LD50:950 mg/kg FEPRA7 2,76,43
orl-mus LD50:670 mg/kg TIVSAI 33,258,69
scu-rbt LDLo:950 mg/kg HBAMAK 4,1361,35
ivn-rbt LDLo:120 mg/kg HBIXAC 5,112,59
scu-gpg LDLo:800 mg/kg HBAMAK 4,1361,35
scu-frg LDLo:400 mg/kg HBTXAC 5,112,59
orl-mam LD50:440 mg/kg TIVSAI 33,258,69

Reported in EPA TSCA Inventory, 1980.
THR: An exper ETA. HIGH ipr, ivn, scu. MOD orl, scu.
Fire Hazard: Mod, when exposed to heat, flames or oxidizers.
Disaster Hazard: Dangerous; see phenol and chlorides. Can react with oxidizing materials.
To Fight Fire: Alcohol foam.
For further information see Vol. 2, No. 6 of *DPIM Report.*

DICHLOROOXOVANADIUM

CAS RN: 10313099 NIOSH #: YW 1590000
mf: Cl_2OV; mw: 137.84

Dark green syrupy mass. d: 2.88 @ 13°.

SYNS:
DICHLOROOXOVANADIUM
VANADIUM CHLORIDE OXIDE
VANADIUM DICHLORIDE OXIDE
VANADIUM OXYCHLORIDE
VANADIUM OXYDICHLORIDE

TOXICITY DATA: CODEN:
mrc-bcs 400 mmol/L MUREAV 77,109,80

THR: MUT data. See also vanadium compounds and chlorides. Reacts violently with K.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

DICHLOROPENTANE

CAS RN: 30586108 NIOSH #: SA 0330000
mf: $C_5H_{10}Cl_2$; mw: 141.05

Clear, lt yellow liquid; bp: 130°; flash p: 106°F (OC); vap d: 4.86; d: 1.06-1.08 @ 20°.

TOXICITY DATA: CODEN:
DOT: Flammable Liquid, Label: Flammable Liquid FEREAC 41,57018,76.
THR: See 1,5-dichloropentane. See also chlorinated hydrocarbons, aliphatic.
Fire Hazard: Mod, when exposed to heat or flame.
Disaster Hazard: Dangerous; when heated to decomp it emits highly tox fumes of phosgene; can react vigorously with oxidizing materials.
To Fight Fire: Water, foam, CO_2, dry chemical.

1,5-DICHLOROPENTANE

CAS RN: 628762 NIOSH #: SA 0350000
mf: $C_5H_{10}Cl_2$; mw: 141.05

Insol in water. d: 1.1, vap. d: 4.9, bp: 180°, flash p: > 80°F (OC).

TOXICITY DATA: 3 CODEN:
ipr-mus LDLo:64 mg/kg CBCCT* 2,189,50

Reported in EPA TSCA Inventory, 1980.
THR: HIGH via ipr route.
Fire Hazard: Dangerous, when exposed to heat or flame.
Disaster Hazard: Dangerous; see chlorides.
To Fight Fire: Water ineffective except as a blanket; use alcohol foam or spray.

DICHLOROPHENARSINE HYDROCHLORIDE

CAS RN: 536298 NIOSH #: SJ 5775000
mf: $C_6H_6AsCl_2NO \cdot ClH$; mw: 290.41

SYNS:
2-AMINO-4-DICHLOROARSINOPHENOL HYDROCHLORIDE
3-AMINO-4-HYDROXYPHENYL DICHLORARSINE HYDROCHLORIDE
DICHLOROMAPHARSEN

TOXICITY DATA: 3-2 CODEN:
par-hmn TDLo:957 ug/kg:GIT JPETAB 73,412,41
orl-rat LDLo:500 mg/kg NCNSA6 5,12,53
unk-mus LD50:44 mg/kg CNREA8 9,626,49
ivn-rbt LDLo:15 mg/kg JPETAB 73,412,41

THR: A hmn GIT. HIGH unk, ivn. MOD orl. See also arsenic compounds.
Disaster Hazard: When heated to decomp it emits very tox fumes of As, NO_x, HCl and Cl^-.

(2,6-DICHLOROPHENETHYLAMINO)-GUANIDINE

CAS RN: 29096659 NIOSH #: MF 0400000
mf: $C_9H_{12}Cl_2N_4$; mw: 247.15

TOXICITY DATA: 3-2 CODEN:
orl-mus LD50:900 mg/kg JMCMAR 13,1051,70
ipr-mus LD50:180 mg/kg JMCMAR 13,1051,70

THR: HIGH ipr. MOD orl.
Disaster Hazard: When heated to decomp it emits tox fumes of Cl^- and NO_x.

2,4-DICHLOROPHENOL

CAS RN: 120832 NIOSH #: SK 8575000
mf: $C_6H_4Cl_2O$; mw: 163.00

Colorless crystals. mp: 45°, bp: 210°, flash p: 237°F, d: 1.383 @ 60°/25°, vap. d: 5.62, vap. press: 1 mm @ 53.0°.

SYN: NCI-C55345

TOXICITY DATA: 3 CODEN:
skn-mus TDLo:16 gm/kg/39W-I:CAR CNREA8 19,413,59
orl-rat LD50:580 mg/kg FEPRA7 2,76,43
ipr-rat LD50:430 mg/kg BJPCAL 13,20,58
scu-rat LD50:1730 mg/kg FEPRA7 2,76,43
orl-mus LD50:1600 mg/kg TOIZAG 19,356,72
orl-rat TDLo:20 mg/kg (1-20D preg) GISAAA 41(11),102,76
scu-mus TDLo:666 mg/kg (6-14D preg) NTIS** PB223-160

Toxicology Review: STEVA8 2(4),305,74. Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: An exper CARC. MOD orl, ipr, scu. See also chlorinated phenols.
Fire Hazard: Slight, when exposed to heat or flame.
Disaster Hazard: Dangerous; when heated to decomp. or on contact with acid or acid fumes it emits highly tox fumes of chlorides; can react vigorously with oxidizing materials.
To Fight Fire: Alcohol foam, foam, CO_2, dry chemical.
For further information see Vol. 1, No. 7 of *DPIM Report.*

2,6-DICHLOROPHENOL

CAS RN: 87650 NIOSH #: SK 8750000
mf: $C_6H_4Cl_2O$; mw: 163.00

SYN: 2,6-DICHLORFENOL (CZECH)

Crystals.

TOXICITY DATA: 3 CODEN:
unk-dog LDLo:15 mg/kg AIPTAK 50,20,35
unk-rbt LDLo:250 mg/kg XPHBAO 271,144,41
ipr-pgn LDLo:20 mg/kg AIPTAK 50,20,35

THR: HIGH irr to skn, eyes and mu mem. Can cause brain damage, as well as damage to liver and kidneys. See 4,6-dinitro-*o*-cresol.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

4,6-DINITRO-o-CRESOL

CAS RN: 534521 NIOSH #: GO 9625000
mf: $C_7H_6N_2O_5$; mw: 198.15

Yellow prismatic crystals. mp: 85.8°, vap. d: 6.82.

SYNS:
2,4-DINITRO-O-CRESOL
4,6-DINITRO-O-CRESOLO (ITALIAN)
3,5-DINITRO-2-HYDROXYTOLUENE
4,6-DINITROKRESOL (DUTCH)
4,6-DINITRO-O-KRESOL (CZECH)
DINITROMETHYL CYCLOHEXYLTRIENOL
2,4-DINITRO-6-METHYLPHENOL
DNOK (CZECH)
DWUNITRO-O-KREZOL (POLISH)
LE DINITROCRESOL-4,6 (FRENCH)
2-METHYL-4,6-DINITROPHENOL
ZAHLREICHE BEZEICHNUNGEN (GERMAN)

TOXICITY DATA: 3 CODEN:
dnr-omi 10 mg/plate BIZNAT 95,463,76
sln-dmg-orl 250 umol/L ARTODN Suppl. 4,59,80
skn-rbt 105 mg/9D-I MLD JIHTAB 30,10,48
eye-rbt 20 mg/24H SEV 28ZPAK -,107,72
ihl-hmn TCLo:1 mg/m3:CNS HYSAAV 30,197,65
unk-man LDLo:29 mg/kg 85DCAI 2,73,70
orl-rat LD50:10 mg/kg 85ARAE 3,54,76
skn-rat LD50:200 mg/kg WRPCA2 9,119,70
ipr-rat LDLo:28 mg/kg TXAPA9 1,156,59
orl-mus LD50:47 mg/kg HYSAAV 30,197,65
ipr-mus LD50:19 mg/kg BCPCA6 18,1389,69
ivn-dog LDLo:15 mg/kg AIPTAK 50,20,35
ihl-cat LCLo:40 mg/m3 HYSAAV 30,197,65
skn-gpg LDLo:500 mg/kg JIHTAB 30,10,48
ivn-pgn LDLo:7 mg/kg AIPTAK 50,20,35
orl-dom LD50:100 mg/kg 85DPAN -,-,71/76

Aquatic Toxicity Rating: TLm96:10-1 ppm WQCHM* 4,-,74.

TLV: Air: 0.2 mg/m3 DTLVS* 4,152,80. *Toxicology Review:* DTTIAF 80(20),485,73; FNSCA6 2,67,73; 27ZTAP 3,59,69. OSHA Standard: Air: TWA 200 ug/m3 (skin) (SCP-L) FEREAC 39,23540,74. Occupational Exposure to Dinitro-Ortho-Cresol recm std: Air: TWA 0.2 mg/m3 NTIS**. "NIOSH Manual of Analytical Methods" VOL 5 S166=. Reported in EPA TSCA Inventory, 1980.

THR: HIGH via inhal, orl, dermal and ipr routes. An insecticide and an herbicide. Appears to be somewhat less toxic than the *p*-form, but is still highly toxic. SEV eye, MLD skn irr.

Fire Hazard: See nitrates.

Disaster Hazard: See nitrates.

For further information see Vol. 2, No. 5 of *DPIM Report.*

2,6-DINITRO-p-CRESOL

CAS RN: 609938 NIOSH #: GO 9800000
mf: $C_7H_6N_2O_5$; mw: 198.15

SYNS:
DNPC
DINITRO-P-CRESOL
VICTORIA ORANGE
VICTORIA YELLOW

TOXICITY DATA: 3 CODEN:
ipr-mus LD50:24.8 mg/kg JPPMAB 5,497,53

Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.

THR: HIGH via ipr route.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

4,6-DINITRO-0-CRESOL AMMONIUM SALT

CAS RN: 2980645 NIOSH #: GP 0250000
mf: $C_7H_6N_2O_5 \cdot H_3N$; mw: 215.19

SYNS:
AMMONIUM DNOC
PHENOL, 2-METHYL-4,6-DINITRO-, AMMONIUM SALT (9CI)

TOXICITY DATA: CODEN:
dlt-mus-ipr 10 mg/kg EESADV 2,401,78

THR: MUT data.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

4,6-DINITRO-o-CRESOL BARIUM DERIVATIVE

CAS RN: 63989833 NIOSH #: GP 0350000

TOXICITY DATA: 3 CODEN:
orl-rat LDLo:100 mg/kg NCNSA6 5,33,53

Occupational Exposure to Dinitro-Ortho-Cresol recm std: Air: TWA 0.2 mg/m3 NTIS**.

THR: HIGH orl. See also barium compounds, sol.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

4,6-DINITRO-o-CRESOL METHYLAMINE (1:1)

CAS RN: 63989844 NIOSH #: GP 0525000

TOXICITY DATA: 3 CODEN:
ipr-mus LDLo:31 mg/kg CBCCT* 6,146,54

Occupational Exposure to Dinitro-Ortho-Cresol recm std: Air: TWA 0.2 mg/m3 NTIS**.

THR: HIGH ipr. See also nitro compounds of aromatic hydrocarbons.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

4,6-DINITRO-o-CRESOL MORPHOLINE (1:1)

CAS RN: 63989855 NIOSH #: GP 0700000
mf: $C_7H_6N_2O_5 \cdot C_4H_9NO$; mw: 285.29

TOXICITY DATA: 3 CODEN:
ipr-mus LDLo:25 mg/kg CBCCT* 6,146,54

THR: MOD ipr.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

2-NITROPHENETOLE

CAS RN: 610673 NIOSH #: SI 7942000
mf: $C_8H_9NO_3$; mw: 167.18

SYNS:
1-ETHOXY-2-NITROBENZENE O-NITROPHENETOLE

TOXICITY DATA:	CODEN:
mma-sat 1 umol/plate	MUREAV 58,11,78

Reported in EPA TSCA Inventory, 1980.
THR: MUT data. See also nitrates.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

3-NITROPHENOL

CAS RN: 554847 NIOSH #: SM 1925000
mf: $C_6H_5NO_3$; mw: 139.12

Monoclinic crystals; mp: 97°; bp: 194° @ 70 mm; d: 1.485 @ 20°/4°. Decomp when distilled @ ordinary pressure. Sol in hot water and dil acids, caustic solns; insol in petr ether.

SYN: M-NITROPHENOL

TOXICITY DATA:	3-2	CODEN:
skn-rbt 500 mg/24H MOD		28ZPAK -,107,72
eye-rbt 5 mg/24H SEV		28ZPAK -,107,72
orl-rat LD50:447 mg/kg		28ZPAK -,107,72
scu-rat LDLo:500 mg/kg		RMSRA6 16,449,1896
orl-mus LD50:1414 mg/kg		NTIS** PB214-270
ivn-dog LDLo:83 mg/kg		12VXA5 8,741,68
scu-gpg LDLo:500 mg/kg		RMSRA6 16,449,1896
scu-frg LDLo:160 mg/kg		RMSRA6 16,449,1896
unk-rat LD50:328 mg/kg		GTPPAF 8,145,72

Toxicology Review: MUREAV 47(2),75,78. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: HIGH ivn, scu. MOD orl, scu. Skn, eye irr. See also nitrates.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

o-NITROPHENOL

CAS RN: 88755 NIOSH #: SM 2100000
mf: $C_6H_5NO_3$; mw: 139.12

Light yellow crystals, aromatic odor; mp: 45°; bp: 214.5°; d: 1.495 @ 20°; vap press: 1 mm @ 49.3°; sol in water; very sol in alc, ether, benzene, CS; volatile with steam.

SYNS:
2-HYDROXYNITROBENZENE 2-NITROPHENOL

TOXICITY DATA:	3-2	CODEN:
unk-rat LD50:334 mg/kg		GTPPAF 8,145,72
orl-rat LD50:2828 mg/kg		NTIS** PB214-270
scu-rat LDLo:1100 mg/kg		RMSRA6 16,449,1896
orl-mus LD50:1300 mg/kg		TXAPA9 42,417,77
ims-mus LDLo:600 mg/kg		HBTXAC 5,120,59
ivn-dog LDLo:100 mg/kg		12VXA5 8,741,68
scu-cat LDLo:600 mg/kg		HBTXAC 5,120,59
scu-rbt LDLo:1700 mg/kg		HBTXAC 5,120,59
scu-gpg LDLo:900 mg/kg		RMSRA6 16,449,1896
scu-frg LDLo:300 mg/kg		HBTXAC 5,120,59

Toxicology Review: MUREAV 47(2),75,78. Reported in EPA TSCA Inventory, 1980.
THR: HIGH ivn, scu; MOD orl, scu, ims. Has produced kidney, liver damage in animals. Reacts violently with KOH.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x. See also nitrates.

4-NITROPHENOL

CAS RN: 100027 NIOSH #: SM 2275000
mf: $C_6H_5NO_3$; mw: 139.12

Colorless to slightly yellow, odorless crystals, sweet then burning taste; d: 1.270 @ 120°/4°; mp: 113°-114° (sublimes); slightly sol in cold water; very sol in alc, chloroform, ether; sol in solutions of alkali hydroxides and carbonates.

SYNS:
4-HYDROXYNITROBENZENE
NCI-C55992
4-NITROFENOL (DUTCH)
P-NITROPHENOL
PARANITROFENOL (DUTCH)
PARANITROFENOLO (ITALIAN)
PARANITROPHENOL (FRENCH,GERMAN)

TOXICITY DATA:	3-2	CODEN:
dnr-omi 10 mg/plate		BIZNAT 95,463,76
unk-rat LD50:250 mg/kg		GTPPAF 8,145,72
orl-rat LD50:350 mg/kg		MONS**
scu-rat LDLo:200 mg/kg		RMSRA6 16,449,1896
orl-mus LD50:467 mg/kg		NTIS** PB214-270
ipr-mus LD50:75 mg/kg		NTIS** AD691-490
ivn-dog LDLo:10 mg/kg		XPHBAO 271,131,41
unk-cat LD50:150 mg/kg		30ZDA9 -,97,71
scu-gpg LDLo:200 mg/kg		RMSRA6 16,449,1896
ims-pgn LDLo:65 mg/kg		JPETAB 49,187,33
scu-frg LDLo:60 mg/kg		RMSRA6 16,449,1896

Toxicology Review: MUREAV 47(2),75,78. Currently Tested by NTP for Carcinogenesis by Standard Bioassay Protocol as of December 1980. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: HIGH orl, scu, ipr, ivn, ims. MOD orl. See also nitrates.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.
For further information see Vol. 3, No. 3 of *DPIM Report.*

p-NITROPHENOL BARIUM SALT

CAS RN: 34005613 NIOSH #: SM 2625000
mf: $C_{12}H_8N_2O_6 \cdot Ba$; mw: 413.56

TOXICITY DATA:	3-2	CODEN:
orl-rat LDLo:500 mg/kg		NCNSA6 5,36,53
ipr-rat LDLo:100 mg/kg		NCNSA6 5,36,53

THR: HIGH ipr. MOD orl. See also barium compounds.

PYRENE

CAS RN: 129000 NIOSH #: UR 2450000
mf: $C_{16}H_{10}$; mw: 202.26

Colorless solid, solutions have a slight blue color, insol in water, fairly sol in organic solvents. (a condensed ring hydrocarbon), mp: 156°, d: 1.271 @ 23°, bp: 404°.

SYNS:
BENZO(DEF)PHENANTHRENE
PYREN (GERMAN)

TOXICITY DATA:	3	CODEN:
dnd-esc 10 umol/L		PNCCA2 -,39,65
dnd-sal:spr 3 gm/L		BIPMAA 5,477,67
dnd-sal:tes 5 ug/1H-C		BIJOAK 110,159,68
skn-rbt 500 mg/24H MOD		28ZPAK -,26,72
mma-sat 140 umol/L/2H		CNREA8 39,4152,79
msc-rat:emb 10 mg/L		JTEHD6 4,79,78
otr-ham:emb 10 mg/L		CNREA8 31,1118,71
cyt-ham:emb 10 mg/L		CNREA8 31,1118,71
dnd-mam:lym 100 umol		BIPMAA 9,689,70
skn-mus TDLo:10 gm/kg/3W-I:ETA		BJCAAI 10,363,56

"NIOSH Manual of Analytical Methods" VOL 1 183,184. Reported in EPA TSCA Inventory, 1980.
THR: MUT data. A skn irr. An exper ETA.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

N-PYREN-2-YLACETAMIDE

CAS RN: 1732145 NIOSH #: AC 7840000
mf: $C_{18}H_{13}NO$; mw: 259.32

SYN: 2-ACETYLAMINOPYRENE

TOXICITY DATA:	3	CODEN:
orl-rat TDLo:5508 mg/kg/32W-C:NEO		CNREA8 15,188,55

THR: An exper NEO.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

4-PYRENYLOXIRANE

NIOSH #: RR 0878000
mf: $C_{18}H_{12}O$; mw: 244.2

TOXICITY DATA:	CODEN:
mmo-sat 100 pmol/plate	CNREA8 40,642,80
msc-ham:lng 1 umol/L	CNREA8 40,642,80

THR: MUT data.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PYRETHRIN

CAS RN: 97110 NIOSH #: GZ 1575000
mf: $C_{21}H_{28}O_3$; mw: 328.49

SYNS:
2-CYCLOPENTENYL-4-HYDROXY-3-METHYL-2-CYCLOPENTEN-1-ONE CHRYSANTHEMATE
3-(2-CYCLOPENTEN-1-YL)-2-METHYL-4-OXO-2-CYCLOPENTEN-1-YL CHRYSANTHEMUMATE
3-(2-CYCLOPENTENYL)-2-METHYL-4-OXO-2-CYCLOPENTENYL CHRYSANTHEMUMMONOCARBOXYLATE
CYCLOPENTENYLRETHONYL CHRYSANTHEMATE
ENT 22,952

TOXICITY DATA:	2	CODEN:
orl-rat LD50:1410 mg/kg		ARSIM* 20,7,66
unk-rat LD50:900 mg/kg		30ZDA9 -,131,71

Toxicology Review: 27ZTAP 3,43,69.
THR: MOD orl, unk. See also esters. An insecticide.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PYRETHRIN I

CAS RN: 8003347 NIOSH #: UR 4200000
mf: $C_{21}H_{28}O_3$; mw: 328.4

Viscous liquid; bp: 170° @ 0.1 mm (decomp).

SYNS:
CINERIN I OR II
JASMOLIN I OR II
PYRETHRIN I OR II
CHRYSANTHEMUM CINERAREAEFOLIUM
DALMATION INSECT FLOWERS
INSECT POWDER
PYRETHRUM (INSECTICIDE)
TRIESTE FLOWERS

TOXICITY DATA:	3	CODEN:
orl-rat LD50:200 mg/kg		GUCHAZ 6,442,73
orl-mus LD50:370 mg/kg		EVHPAZ 14,15,76
orl-mam LD50:250 mg/kg		AMIHAB 14,178,56

TLV: Air: 5 mg/m3 DTLVS* 4,352,80. OSHA Standard: Air: TWA 5 mg/m3 (SCP-U) FEREAC 39,23540,74.
THR: MOD orl, unk. See also esters. An allergen. Has produced diarrhea, convulsions, collapse and respiratory failure, nausea, tinnitus, headache and CNS upset. A highly insecticidal extract of weak mammalian tox. Rapid detoxified in GI tract. For the long term, slight but definite liver damage occurs at 1000 ppm and 5000 ppm diet levels. Usual early symptoms are a contact dermatitis, asthma, sneezing. A dose of 15g was fatal to a child.
Fire Hazard: Slight.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PYRETHRIN II

CAS RN: 121299 NIOSH #: GZ 0700000
mf: $C_{22}H_{28}O_5$; mw: 372.50

Viscous liquid; bp: 200° @ 0.1 mm (decomp).

SYNS:
ENT 7,543
PYRETHROLONE CHRYSANTHEMUM DICARBOXLIC ACID METHYL ESTER ESTER
PYRETHROLONE ESTER OF CHRYSANTHEMUMDICARBOXYLIC ACID MONOMETHYL ESTER
PYRETRIN II

TOXICITY DATA:	2	CODEN:
unk-man LDLo:1029 mg/kg		85DCAI 2,73,70
orl-rat LD50:1200 mg/kg		12VXA5 8,889,68

Toxicology Review: 27ZTAP 3,121,69. Reported in EPA TSCA Inventory, 1980.
THR: MOD orl, unk. See also pyrethrin I; An allergen, insecticide.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

TOXICITY DATA: 3	CODEN:
skn-mus TDLo:6700 mg/kg/16W-I:NEO	CNREA8 19,413,59
orl-rat LD50:820 mg/kg	FEPRA7 2,76,43
ipr-rat LD50:355 mg/kg	BJPCAL 13,20,58
scu-rat LD50:2260 mg/kg	FEPRA7 2,76,43
ivn-mus LD50:56 mg/kg	CSLNX* NX#03492
orl-gpg LD50:1 gm/kg	FMCHA2 -,D317,80
unk-mam LD50:150 mg/kg	30ZDA9 -,102,71

Carcinogenic Determination: Indefinite IARC** 20, 349,79. *Toxicology Review:* 27ZTAP 3,147,69. Selected by NTP for Carcinogenesis Bioassay as of December 1980. Reported in EPA TSCA Inventory, 1980.

THR: An exper NEO, ± CARC. HIGH ipr, ivn, unk; MOD orl, scu. See also chlorophenols.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^- and explodes.

2,4,6-TRICHLOROPHENOL

CAS RN: 88062 NIOSH #: SN 1575000
mf: $C_6H_3Cl_3O$; mw: 197.44

Colorless needles or yellow solid, strong phenolic odor. mp: 68°, bp: 244.5°, fp: 62°, d: 1.490 @ 75°/4°, vap. press: 1 mm @ 76.5°. Sol in water; very sol in alc, ether.

SYNS:

DOWICIDE 2S
2,4,6-TRICHLORFENOL (CZECH)
NCI-C02904

TOXICITY DATA: 3	CODEN:
skn-rbt 500 mg/24H MOD	28ZPAK -,80,72
eye-rbt 250 ug/24H SEV	28ZPAK -,80,72
mmo-sat 400 uL/plate	BECTA6 24,590,80
orl-rat TDLo:185 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-mus TDLo:441 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-mus TD:882 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-rat TD:374 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-rat LD50:820 mg/kg	PCOC** -,1176,66
ipr-rat LD50:276 mg/kg	BJPCAL 13,20,58

Carcinogenic Determination: Indefinite IARC** 20, 349,79. *Toxicology Review:* 27ZTAP 3,147,69. NCI Carcinogenesis Bioassay Completed; Results Positive: Mouse, Rat (NCITR* NCI-CG-TR-155,79). Reported in EPA TSCA Inventory, 1980.

THR: MUT data. A skn, eye irr. An exper CARC; HIGH ipr; MOD orl. See also chlorophenols.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl^-.

2,4,5-TRICHLOROPHENOL compound with PIPERAZINE (2:1)

CAS RN: 5714829 NIOSH #: SN 2670000
mf: $C_{12}H_6Cl_6O_2 \cdot C_4H_{10}N_2$; mw: 481.04

SYNS:

BIS(2,4,5-TRICHLOROPHENOL)PIPERAZINE
PIPERAZINE SALT OF BIS(2,4,5-TRICHLOROPHENOL)

TOXICITY DATA: 3-2	CODEN:
orl-hmn LD50:50 mg/kg	FAZMAE 17,108,73
orl-mus LD50:750 mg/kg	FAZMAE 17,108,73

THR: HIGH orl; MOD orl. See also chlorophenols and piperazine.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

2,4,5-TRICHLOROPHENOXYACETIC ACID

CAS RN: 93765 NIOSH #: AJ 8400000
mf: $C_8H_5Cl_3O_3$; mw: 255.48

Crystals, light tan solid; mp: 151°-153°. The teratogenicity is due in part to 2,3,7,8-TCDD, which is present as a contaminant (ARENAA 17,123,72)

SYNS:

ACIDE 2,4,5-TRICHLORO PHENOXYACETIQUE (FRENCH)
(2,4,5-TRICHLOOR-FENOXY)-AZIJNZUUR (DUTCH)
ACIDO (2,4,5-TRICLORO-FENOSSI)-ACETICO (ITALIAN)
(2,4,5-TRICHLOR-PHENOXY)-ESSIGSAEURE (GERMAN)
2,4,5-T

TOXICITY DATA: 3	CODEN:
orl-rat TDLo:500 mg/kg (6-10D preg)	FCTXAV 9,527,71
orl-rat TDLo:500 mg/kg (6-15D preg)	FCTXAV 9,527,71
orl-rat TDLo:714 mg/kg (MGN)	FCTXAV 19,41,81
orl-rat TDLo:215 mg/kg (6-15D preg)	TXAPA9 20,396,71
orl-rat TDLo:800 mg/kg (6-15D preg)	TXAPA9 20,396,71
scu-rat TDLo:300 mg/kg (13-14D preg)	TXAPA9 20,396,71
orl-mus TDLo:135 mg/kg/(6-14D preg):TER	TXAPA9 33,174,75
unk-rat TDLo:27600 ug/kg (10-15D preg)	NTIS** PB223-160
unk-rat TDLo:278 mg/kg (10-15D preg)	NTIS** PB223-160
unk-rat TDLo:60 mg/kg (10-15D preg)	NTIS** PB223-160
orl-mus TDLo:6250 ug/kg (10D male)	TXAPA9 25,441,73
orl-mus TDLo:450 mg/kg (6-15D preg)	NSAPCC 272,243,72
orl-mus TDLo:600 mg/kg (6-15D preg)	NSAPCC 272,243,72
orl-mus TDLo:80 mg/kg (6-15D preg)	NSAPCC 272,243,72
scu-mus TDLo:1 gm/kg (6-15D preg)	TXAPA9 22,317,72
scu-mus TDLo:450 mg/kg (6-14D preg)	APTOA6 32,408,73
orl-ham TDLo:500 mg/kg/(6-10D preg):TER	BECTA6 6,559,71
orl-ham TDLo:200 mg/kg (7-11D preg)	BECTA6 6,599,67
orl-ham TDLo:500 mg/kg (7-11D preg)	BECTA6 6,599,67
orl-ham LD50:425 mg/kg	MUREAV 65,83,79
skn-rbt 500 mg/24H MOD	28ZPAK -,80,72
eye-rbt 250 ug/24H SEV	28ZPAK -,80,72
mmo-sat 400 uL/plate	BECTA6 24,590,80
orl-rat TDLo:185 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-mus TDLo:441 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-mus TD:882 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-rat TD:374 gm/kg/2Y-C:CAR	NCITR* NCI-CG-TR-155,79
orl-rat LD50:820 mg/kg	PCOC** -,1176,66
ipr-rat LD50:276 mg/kg	BJPCAL 13,20,58
cyt-dmg-orl 250 ppm	MUREAV 65,83,79
sln-dmg-orl 1000 ppm/15D	MUREAV 65,83,79

FLUORACIZINE

CAS RN: 30223484 NIOSH #: SO 4700000
mf: $C_{20}H_{21}F_3N_2OS$; mw: 394.49

SYN: 10-DIETHYLAMINOPROPIONYL-3-TRIFLUOROMETHYL PHENOTHIAZINE HYDROCHLORIDE

TOXICITY DATA: 3	CODEN:
unk-rat TDLo:300 mg/kg/(16-21D preg):TER	RPTOAN 36(4),178,73
unk-mus TDLo:10 mg/kg (4D preg)	RPTOAN 36 ,178,73
unk-rbt TDLo:140 mg/kg (16-29D preg)	RPTOAN 36 ,178,73

THR: An exper TER.
Disaster Hazard: When heated to decomp it emits very tox fumes of SO_x, NO_x and F^-.

FLUORANTHENE

CAS RN: 206440 NIOSH #: LL 4025000
mf: $C_{16}H_{10}$; mw: 202.26

A polycyclic hydrocarbon. Colorless solid. mp: 120°, bp: 367°, vap. press: 0.01 mm @ 20°.

SYNS:
BENZO(JK)FLUORENE
IDRYL
1,2-(1,8-NAPHTHYLENE)BENZENE

TOXICITY DATA: 3	CODEN:
mma-sat 100 mg/L/72H	FCTXAV 17,141,79
skn-mus TDLo:280 mg/kg/58W-I TFX:ETA	JNCIAM 56,1237,76
orl-rat LD50:2000 mg/kg	AIHAAP 23,95,62
ivn-mus LD50:100 mg/kg	CSLNX* NX#00205
skn-rbt LD50:3180 mg/kg	AIHAAP 23,95,62

"NIOSH Manual of Analytical Methods" VOL 1 183, 184. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: An exper ETA. HIGH ivn. MOD oral and skin. MUT data.
Fire Hazard: Slight, when exposed to heat or flame.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

1,1'-(3,9-FLUORANTHENEDIYL)BIS(2-(DIMETHYLAMINO)ETHANONE) DIHYDROCHLORIDE HYDRATE

CAS RN: 64296500 NIOSH #: KM 5776000
mf: $C_{24}H_{24}N_2O_2 \cdot 2ClH \cdot xH_2O$; mw: 571.56

SYN: RMI 11645 DA

TOXICITY DATA: 2	CODEN:
orl-mus LD50:2590 mg/kg	ALACBI 12,77,79
scu-mus LD50:930 mg/kg	ALACBI 12,77,79

THR: MOD orl, scu.
Disaster Hazard: When heated to decomp it emits very tox fumes of HCl and NO_x.

FLUORAPATITE

CAS RN: 1306054 NIOSH #: LL 4850000
mf: $Ca_{10}F_2O_4P$; mw: 533.77

SYN: PHOSPHATE ROCK

TOXICITY DATA:
Occupational Exposure to Inorganic Fluorides-recm std: Air: TWA 2.5 mg(F)/m3 NTIS**.
THR: See also fluorides and phosphates.
Disaster Hazard: When heated to decomp it emits very tox fumes of F^- and PO_x.

FLUOREN-2-AMINE

CAS RN: 153786 NIOSH #: LL 5075000
mf: $C_{13}H_{11}N$; mw: 181.25

SYNS:
AMINOFLUOREN (GERMAN)
2-AMINOFLUORENE
2-FLUORENAMINE
2-FLUORENEAMINE

TOXICITY DATA: 3	CODEN:
dnd-rat:lvr 4200 nmol/L	CNREA8 40,3579,80
dns-rat:lvr 500 nmol/L	ENMUDM 3,11,81
bfa-rat/sat 10 mg/kg	ENMUDM 1,155,79
msc-rat:lvr 100 umol/L	ENMUDM 2,278,80
dnr-sat 50 ug/plate	MUREAV 89,1,81
mma-omi 20 ug/plate	CBINA8 22,297,78
orl-rat TDLo:3600 mg/kg/32W-C:CAR	CNREA8 15,188,55
skn-rat TDLo:240 mg/kg/73W-I:CAR	JNCIAM 10,1201,50
scu-rat TDLo:400 mg/kg/26W-I:ETA	CNREA8 7,453,47
orl-mus TDLo:100 mg/kg/47W-C:ETA	CNREA8 7,453,47
skn-mus TDLo:11 mg/kg/34W-C:NEO	BJCAAI 14,195,60
imp-mus TDLo:50 mg/kg:CAR	BJCAAI 12,222,58
orl-rat TD:4000 mg/kg/23W-C:ETA	CNREA8 7,730,47
orl-rat TD:3200 mg/kg/58W-C:ETA	CNREA8 7,453,47
orl-rat TD:2420 mg/kg/23W-C:NEO	JNCIAM 10,1201,50
imp-mus TD:100 mg/kg:ETA	BMBUAQ 14,147,58

Toxicology Review: 85CVA2 5,63,70.
THR: An exper CARC, ETA, NEO. MUT data.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

FLUORENE-9,9-(BIS)PROPYLAMINE

CAS RN: 2409190 NIOSH #: LL 5860000
mf: $C_{19}H_{24}N_2$; mw: 280.45

SYN: 9,9'-FLUORENEDIPROPYLAMINE

TOXICITY DATA: 2	CODEN:
eye-rbt 500 mg SEV	IHFCAY 6,1,67
orl-rat LD50:620 mg/kg	IHFCAY 6,1,67

THR: MOD oral. A severe irr to rbts' eyes.
Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

9-FLUORENECARBOXYLATE-3-QUINUCLIDINOL, HYDROCHLORIDE

CAS RN: 548652 NIOSH #: VD 7180000
mf: $C_{21}H_{22}NO_2 \cdot ClH$; mw: 356.90

SYN: FLUORENE-9-CARBOXYLIC ACID, 3-QUINUCLIDINYL ESTER

Disaster Hazard: Dangerous; shock will explode it; when heated, burns and emits acrid fumes; can react on contact with oxidizing materials.

NAPHTHA, COAL TAR

CAS RN: 8030306 NIOSH #: QI 9450000

Dark straw-colored to colorless liquid. Sol in benzene, toluene, xylene, etc. bp: 149°-216°, flash p: 107°F (CC), d: 0.862-0.892, autoign. temp.: 531°F.

SYNS:

BENZIN
160 DEGREE BENZOL
COAL TAR NAPHTHA DISTILLATE
LIGHT LIGROIN
NAFTA (POLISH)
NAPHTHA
NAPHTHA, PETROLEUM
PETROLEUM BENZIN
PETROLEUM NAPHTHA

TOXICITY DATA: 2 CODEN:
ihl-rat LCLo:1600 ppm/6H CHINAG 17,1078,39

TLV: Air: 300 ppm DTLVS* 4,433,80. OSHA Standard: Air: TWA 100 ppm (SCP-G) FEREAC 39,23540,74. "NIOSH Manual of Analytical Methods" VOL 2 S86. Reported in EPA TSCA Inventory, 1980.

THR: MOD via inhal route. Can cause unconsciousness which may go to coma, stentorious breathing and bluish tint to the skin. Recovery follows removal from exposure. In mild form, intoxication resembles drunkenness. On a chronic basis no true poisoning; sometimes headache, lack of appetite, dizziness, sleeplessness, indigestion and nausea. A common air contaminant. See oils, mineral.

Fire Hazard: Mod, when exposed to heat or flame; can react with oxidizing materials. Keep containers tightly closed.

Explosion Hazard: Slight.

To Fight Fire: Foam, CO_2, dry chemical.

alpha-NAPHTHAL

CAS RN: 66773 NIOSH #: QJ 0175000

TOXICITY DATA: 3 CODEN:
scu-dog LDLo:330 mg/kg ZMWIAJ 19,545,1881

Reported in EPA TSCA Inventory, 1980.

THR: HIGH scu.

NAPHTHALENE

CAS RN: 91203 NIOSH #: QJ 0525000
mf: $C_{10}H_8$; mw: 128.18

Aromatic odor, white, crystalline, volatile flakes. mp: 80.1°, bp: 217.9°, flash p: 174°F (OC), d: 1.162, lel = 0.9%, uel = 5.9%, vap. press: 1 mm @ 52.6°, vap. d: 4.42. Autoign temp: 1053°F (567°C); sol in alc, benzene. Insol in water; very sol in ether, CCl_4, CS_2 hydronaphthalenes, in fixed and volatile oils.

SYNS:

CAMPHOR TAR
MOTH BALLS
MOTH FLAKES
NAFTALEN (POLISH)
NAPHTHALINE
NAPHTHENE
NCI-C52904
TAR CAMPHOR
WHITE TAR

TOXICITY DATA: 3 CODEN:
ipr-rat TDLo:5925 mg/kg (1-15D preg) TXAPA9 48,A35,79
skn-rbt 495 mg open MLD UCDS** 1/11/68
eye-rbt 100 mg MLD BIOFX* 16-4/70
scu-rat TDLo:3500 mg/kg/12W-I:ETA APAVAY 329,141,56
orl-chd LDLo:100 mg/kg 28ZRAQ -,228,60
unk-man LDLo:74 mg/kg 85DCAI 2,73,70
orl-rat LD50:1780 mg/kg BIOFX* 16-4/70
ipr-mus LD50:150 mg/kg NTIS** AD691-490
scu-mus LD50:969 mg/kg TOIZAG 20(5/6),772,73
ivn-mus LD50:100 mg/kg CSLNX* NX#00203
orl-dog LDLo:400 mg/kg HBAMAK 4,1289,35
orl-cat LDLo:1000 mg/kg HBAMAK 4,1289,35
orl-rbt LDLo:3 gm/kg HBAMAK 4,1289,35
orl-mam LD50:1000 mg/kg FMCHA2 -,D213,80

Aquatic Toxicity Rating: TLm96:10-1 ppm WQCHM* 3,-,74. *TLV:* Air: 10 ppm DTLVS* 4,293,80. *Toxicology Review:* 38ZNAA 1(1),93,71; JOPDAB 59,1,61; 27ZTAP 3,30,69. OSHA Standard: Air: TWA 10 ppm (SCP-T) FEREAC 39,23540,74. DOT-ORM-A, Label: None FEREAC 41,57018,76. Currently Tested by NTR for Carcinogenesis by Standard Bioassay Protocol as of Sept 1980. "NIOSH Manual of Analytical Methods" VOL 3 S292. Reported in EPA TSCA Inventory, 1980.

THR: MOD orl and HIGH ipr, ivn. An exper ETA. May be used as an insecticide. Systemic reactions include nausea, headache, diaphoresis, hematuria, fever, anemia, liver damage, vomiting, convulsions and coma. Poisoning may occur by ing of large doses, inhal or skn absorption.

Fire Hazard: Mod, when exposed to heat or flame; reacts with oxidizing materials. Reacts violently with CrO_3.

Spontaneous Heating: No.

Explosion Hazard: Mod, in the form of dust, when exposed to heat or flame.

To Fight Fire: Water, CO_2, dry chemical.

Incomp: Dinitrogen pentaoxide.

1-NAPHTHALENEACETAMIDE

CAS RN: 86862 NIOSH #: QJ 0590000
mf: $C_{12}H_{11}NO$; mw: 185.24

SYNS:

NAPHTHALENE ACETAMIDE
ALPHA-NAPHTHALENEACETAMIDE
ALPHA-NAPHTHYLACETAMIDE
1-NAPHTHYLACETAMIDE

TOXICITY DATA: 2 CODEN:
orl-mam LD50:1000 mg/kg FMCHA2 -,D143,75

Reported in EPA TSCA Inventory, 1980.

THR: MOD orl.

Disaster Hazard: When heated to decomp it emits tox fumes of NO_x.

1-NAPTHTALENEACETIC ACID

CAS RN: 86873 NIOSH #: QJ 0875000
mf: $C_{12}H_{10}O_2$; mw: 186.22

SYNS:
ISOAMYL PHENYLAMINOACETATE HYDROCHLORIDE
ISOPENTYL-2-PHENYLGLYCINATE HYDROCHLORIDE
3-METHYLBUTYL ALPHA-AMINOBENZENEACETATE HYDROCHLORIDE (±)-
PHENYLAMINOACETIC ACID ISOAMYL ESTER HYDROCHLORIDE
d,l-2-PHENYLGLYCINISOAMYLESTERHYDROCHLORID (GERMAN)

TOXICITY DATA: 3-2 CODEN:
orl-mus LD50:2600 mg/kg PHARAT 33,749,78
ipr-mus LD50:415 mg/kg PHARAT 30,765,75
ivn-mus LD50:77 mg/kg PHARAT 33,749,78

THR: HIGH ipr, ivn; MOD orl.
Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_x.

PHENANTHRA-ACENAPHTHENE

CAS RN: 7258915 NIOSH #: QI 9400000
mf: $C_{24}H_{16}$; mw: 304.40

SYN: 4,5-DIHYDRO-NAPHTHA(1,2-K)ACEPHENANTHRYLENE

TOXICITY DATA: 3 CODEN:
skn-mus TDLo:1250 mg/kg/52W-I:ETA PRLBA4 117,318,35

THR: An exper ETA via skn in mus.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PHENANTHRENE

CAS RN: 85018 NIOSH #: SF 7175000
mf: $C_{14}H_{10}$; mw: 178.24

Solid or monoclinic crystals. mp: 100°, bp: 339°, d: 1.179 @ 25°, vap. press: 1 mm @ 118.3°, vap. d: 6.14. Insol in water; sol in CS_2 benzene, hot alcohol; very sol in ether.

SYN: PHENANTHREN (GERMAN)

TOXICITY DATA: 3 CODEN:
dnd-sal:spr 3 gm/L BIPMAA 5,477,67
dnd-sal:tes 5 ug/1H-C BIJOAK 110,159,68
dnd-ham:kdy 5 mg/L BCPCA6 20,1297,71
mma-sat 100 ug/plate APSXAS 17,189,80
dnd-ham:fbr 5 mg/L/24H BCPCA6 20,1297,71
cyt-ham:lng 40 mg/L/27H MUREAV 66,277,79
sce-ham-ipr 900 mg/kg/24H MUREAV 66,65,79
sce-ham:fbr 10 umol/L JNCIAM 58,1635,77
skn-mus TDLo:71 mg/kg:NEO JNCIAM 50,1717,73
skn-mus TD:22 gm/kg/10W-I:ETA BJCAAI 10,363,56
orl-mus LD50:700 mg/kg HYSAAV 29,19,64
ivn-mus LD50:56 mg/kg CSLNX* NX#00190

"NIOSH Manual of Analytical Methods" VOL 1 206. Reported in EPA TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary Assessment Information Proposed Rule FERREAC 45,13646,80.
THR: MUT data. An exper NEO, ETA. HIGH ivn. MOD orl. A hmn skn photosensitizer. A slight fire hazard.
To Fight Fire: water, foam, CO_2, dry chemical.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PHENANTHRENE-3,4-DIHYDRODIOL

NIOSH #: SF 7353100
mf: $C_{14}H_{12}O_2$; mw: 212.26

SYNS:
3,4-DIHYDROMORPHOL
3,4-DIHYDRO-3,4-PHENANTHRENEDIOL

TOXICITY DATA: 3 CODEN:
skn-mus TDLo:85 mg/kg:ETA CNREA8 39,4069,79

THR: An exper ETA.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PHENANTHRENE EPOXIDE

NIOSH #: SF 7704500
mf: $C_{14}H_8O$; mw: 192.22

TOXICITY DATA: CODEN:
otr-ham:emb 5 mg/L CNREA8 32,1391,72

THR: MUT data.

9,10-PHENANTHRENE OXIDE

CAS RN: 585080 NIOSH #: SF 7352000
mf: $C_{14}H_{10}O$; mw: 194.24

Colorless needles; mp: 152°-153°; very slightly sol in water; very sol in alc, ether.

SYNS:
9,10-EPOXY-9,10-DIHYDROPHENANTHRENE
PHENANTHRENE-9,10-EPOXIDE
1A,9B-DIHYDROPHENANTHRO-(9,10-B)OXIRENE,(9CI)

TOXICITY DATA: 3 CODEN:
mma-sat 100 ug/plate MUREAV 66,337,79
skn-mus TDLo:40 mg/kg:ETA JNCIAM 39,1217,67

THR: MUT data. An exper ETA.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

PHENANTHRENEQUINONE

CAS RN: 84117 NIOSH #: SF 7875000
mf: $C_{14}H_8O_2$; mw: 208.22

Orange needles; d: 1.405 @ 4°; mp: 206.5°-207.5°; bp > 300° subl; very slightly sol in water; sol in hot alc, benzene; slightly sol in ether.

SYNS:
9,10-PHENANTHRAQUINONE
9,10-PHENANTHRENEDIONE
9,10-PHENANTHRENEQUINONE

TOXICITY DATA: 3 CODEN:
skn-mus TDLo:800 mg/kg/29W-C:ETA PIATA8 16,309,40
ipr-mus LDLo:165 mg/kg HBTXAC 5,110,59

Reported in EPA TSCA Inventory, 1980.
THR: An exper ETA. HIGH acute ipr.
Disaster Hazard: When heated to decomp it emits acrid smoke and fumes.

REFERENCES

REFERENCES

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PHOTOGRAPHS

Alabama By-Products
ALD000823179

Area of upstream ditch sediment sample #ABC-SD1-BG.

Ditch Sample ABC-SD2-DI taken before culvert. Runoff from former disposal area runs to ditch. Holding pond in background.

Surface runoff holding pond.

Five Mile Creek at dam looking upstream. Water intake building in background.

Dam on Five Mile Creek.
Location of sediment sample
#ABC-SD3-BG.

Equalization basin sample
#ABC-SD5-PD.